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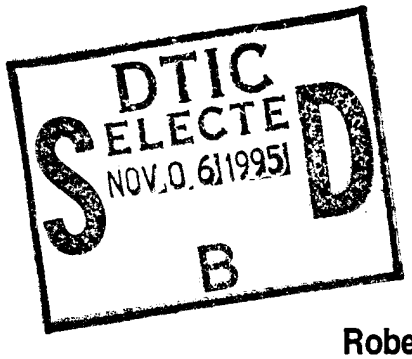
Assessment of Potential for Leadership
Phase I: Development of the Measures



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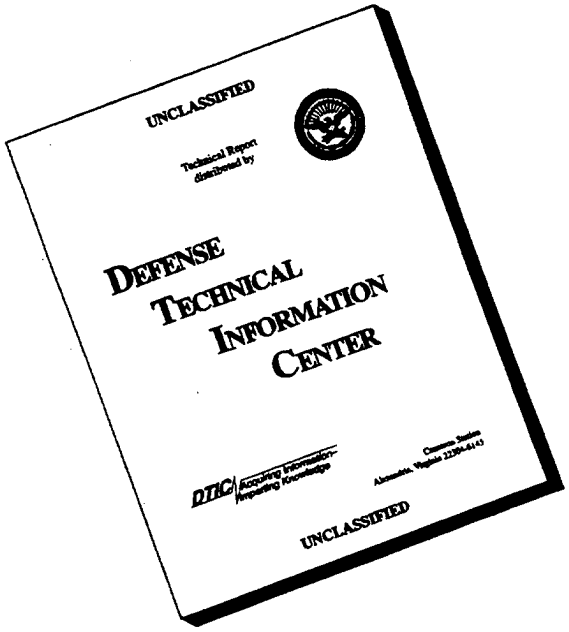

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A technology was required to identify potential leaders from among recruits who did not have the technical knowledge required for direct entry into "A" schools with such requirements. To potentially fulfill this need, an experimental biodata form that emphasized teenage leadership opportunities was developed and an appropriate commercially available personality measure was identified. A major consideration during the above work was to ensure that such technology provided an equal opportunity for selection into the program regardless of race. It is recommended that the two instruments described herein be submitted to a validation process so that their ability to distinguish potential leaders from non-leaders is appropriately evaluated prior to any implementation.

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Foreword

This effort was conducted with reimbursable funds provided by document number N6804594WRKF001 under the mission sponsorship of the Chief of Naval Education and Training (CNET-T2A). The purpose of the work unit is to recommend a personality measure and develop an experimental biodata measure that can be validated in Phase II for possible use in the assessment of new recruits' potential for leadership. The assessment scores could be used to select those applicants for technical ratings who might develop into effective leaders in the ratings although they did not have the requisite ASVAB scores for entry. The candidates selected would receive the additional technical training that they would need to successfully complete their rating program entry requirements.

This report provides an experimental biodata measure, recommends a commercially-available personality questionnaire and describes the work done in their development. Both measures are considered to be ready for their validation in Phase II.

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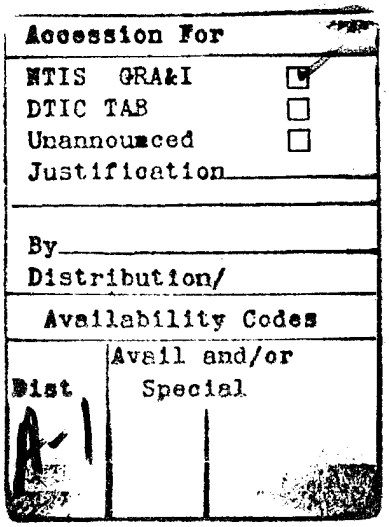

Summary

Background

Minorities are underrepresented in leadership positions in several Naval ratings. While training exists to help minorities learn the material that they need to successfully complete "A" school, there is no current technology available to help predict which recruits may be able to achieve leadership status in the associated ratings.

Objective

The present study sought to develop an experimental version of a biodata measure and to identify a published personality form that could be submitted to a validation process. The validation process would establish the ability, or inability, of the measures to predict the future leadership achievements of new recruits.

Approach

Two literature reviews were conducted independently to identify the personality characteristics that appeared to be most correlated with leadership in previous research. In addition, some extant data from one Naval rating was analyzed to identify any leadership characteristics that might be unique to Naval enlisted personnel. Then published measures of those characteristics were identified and the optimal instrument was identified.

To develop the experimental biodata instrument, interviews were conducted with 100 male Marines (E-6 to E-9) and Navy Chiefs (E-7 to E-9) who were in leadership positions in their respective services. So that we could assume that leadership rather than technical expertise had been the major factor in their promotions, most interviewees were from ratings or military occupational specialties (MOSs) that were limited in technical content. To minimize potential discriminatory selection based on racial factors, an attempt was made to interview pairs of blacks and whites matched according to their rating/MOS and grade. Biodata items were developed from the

interview data. In a few instances, biodata items from other questionnaires were adapted using our data.

Results and Conclusions

The literature indicates that personality measures may be able to provide incremental prediction of leadership beyond that attributable to cognitive and biodata measures. The 11 key characteristics that should be included in any personality measure used to predict leadership are Achievement, Adaptability, Ambition, Emotional Maturity, Energy Level, Honesty, Initiative, Integrity, Persistence, Self-confidence, and Stress Tolerance. However, no single test has been built to assess these leadership characteristics for an application like ours. The five factor hierarchical theory of personality seems to be most applicable to our situation. While the five first-level factors would not be specific enough for our use, the second-level facets would be applicable. The most appropriate available measure of these facets appears to be the NEO PI-R.

The literature and past experience indicate that a biodata instrument has the greatest probability of serving as an effective predictor of leadership. The interviews, described previously, covered adolescent experiences in school, community, work, family, and personal activities. Using the interview information and, in a few instances, research-based biodata forms from other sources, we developed 194 items that could be submitted to validation as potential predictors of leadership among adolescent black and white males entering the Navy.

Most of the interview data were qualitative in nature and did not provide an opportunity for quantitative comparisons between races or organizations. However, there were 28 items that were amenable to analysis. We found that, in general, there were minimal differences between the responses of blacks compared to whites or Marines compared to Chiefs. In contrast with whites, blacks from our sample were more likely to be from rural or large city locations, were more active in religious functions, had fewer jobs during school, and were more often perceived by adults as dependable. In contrast to the Chiefs, Marines in our sample described themselves as attending an academic high school more often, being more active in sports, achieving more leadership positions in sports, and being perceived by adults as dependable more often.

Recommendations

It is recommended that the experimental biodata instrument developed in this study and the NEO PI-R be submitted to a concurrent validation study to determine if one or both can assist the Navy in selecting new recruits that can assume leadership positions in technical ratings.

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Distribution

Introduction

Problem

Minority personnel make up 17% of the Naval enlisted force. However, a problem arises because the minority population is not distributed evenly across the Navy's enlisted ratings. For example, minorities are significantly under represented (less than 10%) in 20 of the ratings (e.g., Electronics Technician and Fire Controlman). Many of these ratings require that applicants obtain a score above the cut-score on a technical Armed Services Vocational Aptitude Battery (ASVAB) composite before they are eligible to enter the rating. A technical ASVAB composite consists of a set of ASVAB subtests in which one or more of the subtests is "technical" in nature (i.e., Mechanical Comprehension, Electronics Information, and Auto/Shop Information). Minorities are over represented (more than 30%) in seven of the ratings (e.g., Mess Specialist and Yeoman) without such a requirement. To resolve the problem, the Navy needs to increase minority recruits' interest in and opportunity for entering and succeeding in the ratings that require high scores on ASVAB "technical" composites for entry. To succeed in their careers in "technical" ratings, minorities must be promotable. To be promotable, they must demonstrate both leadership ability and the ability to acquire and skillfully apply the requisite knowledge. As the numbers of career minorities increase in the technical ratings, future minority leaders will serve as role models to attract qualified minority personnel to "technical" ratings.

Purpose and Objective

This study seeks to enhance the Navy's equal opportunity program via the early identification of leadership potential, regardless of race, gender, religion, or ethnic origin. It would be especially helpful if potential leaders could be identified at the very start of their Naval careers. Then, the Navy could ensure that "high leadership potential" personnel would receive any additional support that they might need to enter and become technically proficient in high technology ratings. Scores on cognitive tests are already available through subtests of the ASVAB. Therefore, it is anticipated that any incremental

improvement in our ability to identify recruits leadership potential will come from the use of valid non-cognitive measures.

To achieve this objective, personality and biographical data instruments will be identified or developed. Such instruments will capture the personality and early background behaviors and experiences that are indicative of the predisposition and ability to perform effectively in a leadership position.

The objective of this first phase of research was to develop experimental non-cognitive measures of the potential for leadership. These measures will be tested in Phase II of the research for possible use in identifying new recruits with the potential to develop into career leaders in key Naval ratings.

Background

Leadership

To provide a framework for our work, a search of some of the major literature on leadership was conducted (see Appendix A). Very little leadership research and theory have been built using foremen or lower levels of supervision as the targets of investigation. As a result, we concentrated on those researh efforts that were conducted with middle management in order to supplement the limited amount of literature we could find about supervisors. Out of the many definitions of leadership that are available, the definition that was adopted for our work was the process of influencing the activities of an organized group toward organizational goal attainment. Such a definition made it necessary for us to concentrate on social behavior and influence processes during our attempts to identify and develop measures of individuals potential for leadership. To provide some focus on the most relevant behaviors, we used a taxonomy consisting of 14 generic categories (see Appendix A). These categories were Clarifying, Developing, Motivating, Planning, Problem Solving, Monitoring, Consulting, Informing, Recognizing and Rewarding, Supporting, Team Building, Networking, Disciplining, and Delegating.

Biographical Data

A search of the literature indicated that the non-cognitive measurement technique with the optimum chance of success in predicting leadership ability was referred to as biographical data--or biodata (Barge & Hough, 1986; Hunter & Hunter, 1984; Russell & Kuhnert, 1992). Biodata measures elicit information about the previous experiences and behaviors of the respondents and are based on the fact that what someone will do in the future is best predicted from what has been done in the past (Owens & Henry, 1966).

The first major use of the technology to predict leadership was initiated by Exxon Corporation [Standard Oil Company (New Jersey), 1961] during the decade following World War II. The U.S. Army has developed biodata instruments to predict leadership success as officers (Grey & Mael, 1994) and enlisted personnel (Campbell & Zook, 1992; Peterson, 1987), and the U.S. Air Force (Appel, Grubb, Shermis, Watson, & Cole, 1990) has developed one for officers. None of the three measures has transitioned into operational use although work on the Army's Assessment of Background and Life Experiences (ABLE) continues. In 1985, the Royal Navy (Drakeley & Jones, 1986) introduced biodata as one of the predictors used in the selection of candidates for training as officers at Britannia Royal Naval College, Dartmouth, England. In industry, such a technology has not only demonstrated significant ability to predict leadership among 11,000 first-line supervisors but also generalized across 79 different organizations (Rothstein, Schmidt, Erwin, Owens, & Sparks, 1990).

Biodata constructs can be formed from comprehensive descriptions of people's behavior and experiences in developmentally significant situations likely to occur during childhood and adolescence (Owens & Schoenfeldt, 1979). When administered to college freshmen, such developmentally-based clusters of items have been valid predictors of both men's and women's collegiate leadership activities as seniors (Mumford, O'Connor, Clifton, Connelly, & Zaccarro, 1993).

Additional positive attributes of biodata measures are that they appear to provide one of the most favorable assessment techniques for women and minorities (Barge & Hough, 1986; Mitchell, 1994) and may generalize across national borders (Laurent, 1970).

On the negative side of the equation, some studies of biodata (Barge & Hough, 1986) have shown decrements in validity over time indicating that periodically routine maintenance, such as revalidation, needs to be done for any biodata instrument. Another detriment to

the use of biodata is its potential for being faked. Inaccurate or unstable responses (Shaffer, Saunders, & Owens, 1986) may be obtained from items that are overly subjective (relying on feelings and perceptions rather than behaviors or past events), that have higher degrees of social desirability, or that refer to either a very specific or an indeterminate time-frame. While subjectivity and time-frame causes of faking can be minimized by the careful construction of the biodata items, social desirability should be controlled by other means. One method is to restrict the item content so that it is verifiable (McManus & Masztal, 1993). Another effective way is to develop, include, and advertise a faking detector scale (Shermis, Falkenberg, Appel, & Cole, 1992).

There are several approaches that can be used to develop biodata measures. The human development literature (Mumford & Owens, 1987); theory-based derivation (Russell, 1994); life history interviews (Mumford & Owens, 1987; Russell, 1990); written life histories (Bettin & Kennedy, 1990; Russell, Mattson, Devlin, & Atwater, 1990); factor loadings of biodata items (Mumford & Owens, 1987); existing item pools (Mumford & Owens, 1987); expert judgment (Owens & Schoenfeldt, 1979; Morrison, 1977; Morrison & Sebald, 1974); and specialized job analysis (Mitchell, 1986) are some of those approaches. Over the last 20 years, life history interviews have become the most widely used technique for developing biodata items. This can be an useful method, especially if it is supplemented by theory to focus the interview questions and the researcher is aware of the problems associated with retrospective data collection via the interview.

A problem present in any interview process is the accuracy of the information that is collected. Several factors influence the accuracy of the information acquired via the interview. One is that the ability to remember past events decreases as the time between the event and the interview increases (Cannell, Oksenberg, & Converse, 1977; Herzog & Rogers, 1989; Rogler, Malgady, &Tryon, 1992). Not only are events under-reported, but respondents fill gaps in information with erroneous information to increase the integrity of the full picture (Halverson, 1988; Robler, Malgady, & Tryon, 1992). Another is that people distort their pasts in an effort to be in tune with what is culturally acceptable (Cannell, Oksenberg, & Converse, 1977; Chadwick, Bahr, & Albrecht, 19854; Halverson, 1988; Herzog & Rogers, 1989). The third is that events that are more important to the respondent are reported more completely and accurately than less important events (Cannell, Oksenberg, & Converse, 1977). Fourth, there is a tendency to remember more positive than negative past events (Tylenda & Dollinger, 1987) indicating that the respondent

may be repressing or reinterpreting painful experiences (Cannell, Oksenberg, & Converse, 1977; Chadwick, Bahr, & Albrecht, 1984). Fifth, accuracy in recall appears to be event-specific rather than respondent-specific, meaning that most respondents report some information accurately and some information inaccurately (Cannell, Oksenberg, & Converse, 1977). Some of these issues are put in perspective by McCrae and Costa (1988) who state that "recollections of childhood do contain kernels of truth, and that retrospective studies are useful, partly for their heuristic value in suggesting topics for longitudinal research, and partly as one source of evidence on development to be properly weighed and balanced against other sources." (p. 447)

Personality Traits

While there have been positions (Ashworth, 1989) taken that the distinctions between biodata and personality measurement are no longer meaningful, some research (Shultz, 1993) indicates that such an argument is not valid. That position will be taken in this research until further information becomes available. Appendix B provides much more information about the measurement of leaders' personality traits than the following summary.

Early qualitative analyses (Mann, 1959; Stogdill, 1948) led to the conclusion that personality and leadership were not related. Because of Stogdill's status and Mann's supporting study, it became unacceptable to conduct research on the trait theories of leadership during the 1960s and 1970s, thereby limiting progress in the field. In the 1980s a new technology, meta-analysis (Lord, De Vader, & Alliger, 1986) became available and was applied to Mann's 1959 sample of studies with their limited set of personality traits. The reanalysis refuted Mann's conclusions and clearly supported Dominance as a valid predictor of emergent leadership and provided partial support for Intelligence and Masculinity-Femininity. In accordance, trait theories of leadership have enjoyed renewed vigor.

Before introducing measures of personality into our research, we need to decide whether personality is stable enough for its measurement during the late teens to be useful in predicting behavior that will occur more than 10 years later, after the individuals have matured. Although 25 years ago, the politically correct assumption was that personality was not influenced by genetics but was completely developed via the environment, it has now become somewhat acceptable to question such an assumption. Research (Plomin & Daniels, 1987) indicates that shared family environments

(e.g., social class, diet, child-rearing practices common to all children in a family) have only partial influence on adult personality. In their summary of the research in this area, McCrae and Costa (1994) report the following for all major domains of personality:

> The mean levels of personality traits change with development, but reach final adult levels at about age 30. Between 20 and 30, both men and women become somewhat less emotional and thrill-seeking and somewhat more cooperative and self-disciplined. . . . (p. 173)
>
> Individual differences in personality traits, which show at least some continuity from early childhood on, are also essentially fixed by age 30. (p. 173)

It appears "that an adult's personality profile as a whole will change little over time." (p. 173) Therefore, we can assume that personality is stable enough between the ages of 18 and 38 for reliable personality measures to be applied experimentally to see if they will predict the potential present in 18 year old recruits that may develop into effective leaders when they are Chiefs twenty years later.

Racial or Cultural Bias in Noncognitive Measures

Stability of the factors that we are measuring is not the only issue that must be considered when developing noncognitive measures for selection purposes. Any potential racial or cultural biases must be minimized during the design, test and evaluation, and implementation stages. Based on his extensive experience in developing and evaluating biodata instruments, Professor Michael Mumford (personal communication, April 25, 1994) indicates that biodata demonstrate less racial and cultural bias than cognitive measures. Vicker's recent data (see Appendix B) show that personality tests actually provide some advantages to black Naval enlisted personnel from one rating in comparison with whites. However, differential validity of personality and personal history data (Toole, Gavin, Murdy, & Sells, 1972) have been found in one sample of blue-collar minority and non-minority workers although the effects were not as great as those for aptitude tests.

Therefore, predictors of success in leadership (Sedaleck & Prieto, 1990) across racial and ethnic groups may require different measures or indicators than those typified by white, middle-class Americans. Some experiences that might differentially influence black adolescent development toward leadership are the following:

1. Black mothers (Edelman, 1985) have less time available to spend with families than whites since more are employed at lower paying, longer work-hour jobs. Concurrently, child-care in black families is more often relegated to older siblings.

2. The black drop-out rate from high school (Edelman, 1985) is nearly double that of whites.

3. Blacks and whites (Bass, 1990) begin as early as elementary school to participate significantly in family, church, school, and community activities. However, blacks may take non-traditional paths into leadership via religion, gangs, or race-based politics.

4. Blacks (Bass, 1990) tend to concentrate in education and social service occupations and are underrepresented in technical and scientific fields. Thus, it is difficult for blacks to achieve leadership status in the latter.

5. Black leaders (Bass, 1990) tend to be more task oriented than whites.

6. There appears to be little difference between blacks and whites in their values, motivation, and other personal attributes (Bass, 1990; McCrae & Costa, 1994).

Method

The method used to develop an experimental biodata form that could be submitted to evaluation by experts, field development, and validation in Phase II of the research is described in detail in Appendix C. One hour, semi-structured interviews were conducted with 48 Marine and 52 Navy male enlisted leaders. Forty-six were black and 54 were white. The interview included all facets of each leader's teen-age experiences that might have aided in the development of his leadership ability. The major topics covered were school environment, peer relations, community and church activities, work experiences, and personal characteristics. The focus was on only black and white male leaders with any analysis of other potential minority or gender differences deferred for future research.

Literature search and the analysis of extant data were used in the development of recommendations concerning the measurement of relevant personality variables. These procedures are described in Appendices A and B.

RESULTS

The primary product of the 100 interviews was an experimental biodata measure (see Appendix D). To ensure that differences, if any, in adolescent experiences of blacks and whites are represented, the experimental items encompass all of the responses from the interviewees. During Phase II, the number of options will be aggregated to produce a more parsimonious measure without losing any of the differential input due to race.

Biodata Interview Group Differences

While the purpose of the interviews did not provide any opportunity to compare data from more effective leaders with data from less effective leaders, it was possible to make some comparisons between races (white vs. black) and organizations (USN vs. USMC). The reader must keep in mind that the sample of interviewees was not randomly identified but was selected from organizations that were readily available and had large representations of blacks in non-technical ratings or MOSs. The project sponsor had specified that the selection of a sample should focus on interviewees who were in non-technical (i.e., did not include one or more of the technical information subtests of the ASVAB in the classification formula) MOSs or ratings. Therefore, it was not possible to compare the data provided by the two different occupational classes, technical and non-technical, since the representation of the former was too small for any statistical comparisons to be made.

Since the interviews were exploratory and only semi-structured, there was no attempt to get responses from every interviewee to every question. In fact, questions were deleted, adapted, or added as the interviews progressed and we learned more about our sample of interviewees. While a qualitative comparison of the responses received from white and black leaders based on 36 of the interviews was conducted, the number of respondents available for most comparisons within that analysis was too small to provide accurate, descriptive information. However, for all 100 interviewees, it was possible to conduct statistical tests of 28 items that had sufficient responses and represented either a nominal, ordinal, interval, or ratio scale. There were 3 demographic, 8 school, 3 community, 2 work, 4 family, and 8 personal characteristics items that met these criteria.

Racial Comparisons. There were no significant differences between the proportions of white and black interviewees who reported their years in service [χ^2 (df = 3) = .67, ns] or level of education [χ^2 (df = 2) = .24, ns]. There was a significant difference between the races in the size of the towns in which they spent their adolescent years [χ^2 (df = 3) = 13.42, p = .01]. The proportion of blacks that were raised in rural areas or large cities was greater than the proportion of whites from such locations while whites reported more adolescent years spent in small towns and cities.

There were no significant differences between the proportions of white and black interviewees who described themselves as coming from large or small schools [χ^2 (df = 3) = 3.29, ns], attending an academic vs. vocational school [χ^2 (df = 1) = .45, ns], living close to or remote from their school [χ^2 (df = 1) = .11, ns], active in sports [χ^2 (df = 1) = .06, ns], achieving a leadership position in sports [χ^2 (df = 1) = 2.53, ns], active in other activities [χ^2 (df = 1) = .94, ns], having a large or small number of close friends [χ^2(df = 3) = 1.85, ns], or having a large or small number of acquaintances [χ^2(df = 4) = 2.12, ns].

There were no significant differences between the proportions of white and black interviewees who described themselves as having strong religious beliefs [χ^2 (df = 1) = 3.20, ns] or a leadership role in community activities [χ^2 (df = 1) = .04, ns]. However, there was a significant difference in the religious activity level reported by the two groups. Blacks reported a higher level [χ^2 (df = 2) = 10.46, p = .01] than whites.

There were no significant differences between the proportions of white and black interviewees who reported having from 0 to 2 jobs at any one time during high school (χ^2 (df = 1) = .14, ns]. However, there was a significant difference in the number of jobs that the two groups reported having during high school. Blacks reported having fewer jobs [χ^2 (df = 3) = 13.70, p = .01] than whites.

There were no significant differences between the proportions of white and black interviewees who described themselves as having parents who were divorced [χ^2 (df = 1) = .12, ns], a father in the family unit [χ^2 (df = 1) = 2.81, ns], a mother in the family unit [χ^2 (df = 1) = .03, ns]. However, there was a significant difference in the size of their families that the two groups reported. Blacks reported being from larger families [χ^2(df = 3) = 9.53, p = .03] than whites.

There were no significant differences between the proportions of white and black interviewees who described themselves as high in self-efficacy [χ^2 (df = 2) = .85, ns], high in initiative [χ^2 (df = 2) =

1.00, ns], preferring to do things by themselves vs. with others [χ^2(df = 2) = .16, ns], risk takers [χ^2(df = 1) = 3.15, ns], preferring stable environments [χ^2 (df = 2) = .50, ns], well groomed [χ^2(df = 1) = .32, ns], and sharp dressers [χ^2(df = 1) = 3.35, ns]. However, there was a significant difference in the way that the two groups described their dependability. Blacks reported being more dependable [χ^2(df = 2) = 8.18, p = .02] than whites.

In summary, 23 of 28 items demonstrated no racial differences in our sample. However, in comparison with whites, blacks described themselves more often as coming from a rural or large city background and a larger family. They also reported that they were more active in religious functions, had fewer jobs during school, and were more often perceived by adults as dependable.

Organization. Twenty six of the same 28 items could be used to compare the USN with the USMC interviewees.

There were no significant differences between the Marine and Naval interviewees in how they reported the size of their home town [χ^2(df = 3) = 4.68, ns] or level of education [χ^2 (df = 2) = 4.74, ns]. There was a significant difference between the services in the number of years that they had been in the service [χ^2 (df = 3) = 10.84, p = .02]. The Marines had less years of service than the Chiefs. However, this result was expected since the grade of E-6 was represented in the Marine sample and not in the Navy sample.

There were no significant differences between the proportions of Marine and Naval interviewees who described themselves as coming from large or small schools [χ^2 (df = 3) = 4.00, ns], active in other activities [χ^2 (df = 1) = .001, ns], having a large or small number of close friends [χ^2 (df = 3) = 2.21, ns], or having a large or small number of acquaintances [χ^2 (df = 4_ = 3.83, ns]. However, more Marines reported attending an academic rather than a vocational high school [χ^2 (df = 1) = 23.18, p = .001], being active in sports [χ^2 (df = 1) = 5.16, p = .03], and achieving a leadership position in sports [χ^2 (df = 1) = 4.16, p = .04] than did Chiefs. There were too few responses from the Marines to compare them with the Chiefs on the distance that they lived from school.

There were no significant differences between the proportions of Marine and Naval interviewees who described themselves as active in religious functions [χ^2 (df = 2) = 5.86, ns], having strong religious beliefs [χ^2 (df = 1) = .60, ns], or a leadership role in religious activities [χ^2 (df = 1) = 2.73, ns].

There were no significant differences between the proportions of Marine and Naval interviewees who reported having from 0 to 2 jobs at any one time during high school [χ^2 (df = 1) = .97, ns] or the number of jobs that the two groups reported having during high school [χ^2 (df = 3) = 1.33, ns].

There were no significant differences between the proportions of Marine and Naval interviewees who described themselves as having parents who were divorced [χ^2 (df = 1) = 2.45, ns], a father in the family unit [χ^2 (df = 3) = .02, ns], or a mother in the family unit [χ^2 (df = 1) = .01, ns]. The two groups also reported similar family sizes during their adolescent years [χ^2 (df = 3) = .86, ns].

There were no significant differences between the proportions of Marine and Naval interviewees who described themselves as high in self-efficacy [χ^2 (df = 2) = 5.56, ns], preferring to do things by themselves vs. with others [χ^2 (df = 2) = 1.49, ns], risk takers [χ^2 (df = 1) = .003, ns], preferring stable environments [χ^2 (df = 2) = 2.83, ns], well groomed [χ^2 (df = 1) = .001, ns], and sharp dressers [χ^2 (df = 1) = .0002, ns]. However, there was a significant difference in the way that the two groups described their dependability. Marines reported being more dependable [χ^2 (df = 1) = 7.30, p = .01] than Chiefs. The comparison on Initiative could not be made because the Marine response rate was limited.

In summary, 21 of 26 comparisons demonstrated no organizational differences in our sample. The results of one of the significant differences was expected since the sample was drawn so that the Marines would have less time in service. However, in comparison with Chiefs, Marines described themselves as attending an academic high school more often, being more active in sports, and achieving more leadership positions in sports. The Marines also described themselves as more dependable in the eyes of adults as adolescents.

Personality

For this report, the relationships between personality and leadership have been examined independently from two perspectives. One perspective (see Appendix A) involved leadership in the context of organizational psychology and management. In this approach, the focus is on identifying either leaders or leadership positions. Beginning with a set of leaders, personality profiles can be generated by describing those behaviors that differentiate leaders from nonleaders or effective leaders from ineffective leaders. Beginning with

a leadership position, behavioral requirements can be estimated by analyzing task requirements for effective job performance.

The organizational literature summarized in Appendix A identified 11 key leadership traits that should be considered. These traits are Energy Level, Stress Tolerance, Self-Confidence, Persistence, Integrity, Emotional Maturity, Ambition, Honesty, Initiative, Achievement, and Adaptability.

The second perspective (see Appendix B) begins with personality as the primary focus. The central concern in this approach is to provide a reasonably comprehensive representation of the person's overall behavior patterns. This representation is comprised of a profile of traits that can be grouped into five major categories or domains. Greater detail is provided by examining more specific personality attributes, referred to as personality facets, within the major domains. From this perspective, leadership behaviors are merely one manifestation of the general pattern of behavior for the person.

The personality perspective on leadership provided a prototype profile that added depth to the organizational perspective's list of attributes although the profile omitted one of the latter perspective's attributes, Adaptability. While a wide range of specific attributes were relevant to leadership in specific studies, some themes recurred. The leader must not be depression-prone or vulnerable to stress. The leader must be assertive and active, but strong tendencies to socialize may be counterproductive. The leader must be trusting and honest with his/her people, but cannot afford to be either too kind or too punitive. The leader must set high goals and persist in achievement striving even under demanding conditions, but need not be particularly orderly and methodical.

The convergence of the two leadership descriptions is evident when the organizational perspective is translated into personality perspective terms. Stress Tolerance and Emotional Maturity fall in the Neuroticism domain. Energy Level and Initiative are associated with the Activity and Assertiveness elements of Extraversion. Honesty is a facet of the Agreeableness domain. Persistence, Ambition, and Achievement fall in the Conscientiousness domain. Other leadership perspective traits may be composites of two or more personality domains. Self-Confidence could be represented in the Neuroticism domain, but it also may reflect elements that are part of Extraversion. Integrity may be a combination of honest, straightforward interactions with co-workers (Agreeableness) and a high level of striving to achieve stated goals even when they are difficult (Conscientiousness).

Although the two approaches generally converge, two potential discrepancies between them stand out. First, the organizational perspective emphasizes only the positive elements of leadership. The personality perspective provides greater balance by noting that some attributes that ordinarily would be considered positive may not have this characteristic in leaders. Being kind, generous, gregarious, and sociable would ordinarily be considered positive attributes of people. Pronounced tendencies with respect to these attributes appear to be negative for leaders. Perhaps this reversal occurs because attributes ordinarily are evaluated in the context of person-to-person interactions where the nature of the exchange between people presumably takes precedence over all other considerations. Leadership generally occurs in task settings where achievement is the key consideration. Some distance from people and an equitable balance between kind and punitive behaviors may be critical to achieving good performance in such settings.

The second potential discrepancy between the two approaches comes from the organizational emphasis on Adaptability. Although the construct of Adaptability has not received much attention in the literature (Morrison, 1994), it may be represented in personality models by Openness (i.e., the ability to seek and enjoy new experiences and to be tolerant of new and different ideas and people). Most studies of personality and leadership have relied on personality measurement instruments that did not cover the Openness domain as adequately as they included the other four discussed previously. Further study of this construct would be useful.

The leader's personality attributes--as described in the literature--are captured reasonably well by the prototype leadership profile provided in Appendix B. The profile includes the positive leadership attributes that are common to both perspectives and the negative attributes identified by the personality perspective. The profile omits Openness as a measure of Adaptability because the evidence supporting Openness is presently inadequate.

Discussion

The interviews appeared to be an excellent way to develop response options for the categories of life history information that had been outlined. The cooperation of the interviewees was excellent and their interest was very high. One of the issues that must be faced is whether the information accumulated through the interviews was accurate and complete enough for it to provide the predictive ability that is required. Since the interviewees were trying to recall events that were 18 to 33 years in the past, the material may be considerably inaccurate and biased. In addition, the interviewees were describing events that took place between 1961 and 1976, a generation ago. It is possible that the cultures and life styles of adolescent blacks and/or whites have changed during that period of time. Never-the-less, there is strong support from many different studies indicating that the probability is very good that biodata may make a significant contribution to our ability to predict the leadership potential of recruits.

The literature search also supported the possibility that personality measures may be very good predictors of the potential for leadership. The Five Factor Theory (see Appendix B) may be of great assistance in understanding the relationships between personality and leadership. While the five factors are expressed at an aggregate level and may not provide sufficient information in themselves, measures of the facets imbedded within the factors are available. Adequate factor facet measurement is critical since some facets within a factor are important and others are not. For example, dominance appears to be an important element in leadership while sociability may not be, but both are facets of the Extroversion factor.

While the comparison between the summaries provided in Appendices A and B demonstrate excellent agreement between the two reviewers, it does not provide perfect overlap. Such minor inconsistencies can be expected since the Five Factor theory and its associated measures have been developed quite recently. The leadership literature represents a wide variety of measures from the Cattell 16 PF to Gough's Adjective Check List and California Personality Inventory to Gordon's series of brief tests. No single measure covers all of the 16 leadership characteristics (facets) represented in the Five Factor Theory or even the 11 facets drawn from the major leadership literature. In fact, some of the measures with the same name in two different instruments are not very highly correlated with each other. Such ambiguity makes it difficult to come

up with a definitive list of leadership traits and an instrument that will measure such traits.

Since Adaptability can be assessed within biodata, it appears that the Five Factor Theory provides the most comprehensive available coverage of leadership personality characteristics. Of the three major measures that are based on the Five Factor Theory, the NEO PI-R (Form S, self-report) would appear to be the first choice for several reasons. The NEO PI-R has gone through extensive validation, includes scales that identify the appropriate facets within domain, and has shown some potential linkage to leadership traits. The Multidimensional Personality Questionnaire provides a possible but weaker alternative, while the Hogan Personality Inventory would not be recommended because of its ipsative scales.

Whether biodata and/or personality measures are used, our ability to predict leadership accurately is constrained by several factors. One factor is whether we can develop an effective criterion to use in the validation process. A second factor is opportunity (i.e., whether the potential leaders will ever have the opportunity to develop their propensity for leadership into a skill and, then, have the opportunity to move up the Navy's career ladder to a position that allows them to practice their leadership skills).

Recommendations

The work has been divided into two phases. Phase I, which is described in this report, involves the development of a draft biodata instrument and the identification of an experimental, commercially-available personality measure. Phase II consists of a preliminary evaluation of the effectiveness with which the instruments will function in an operational setting. It is recommended that the biodata form shown in Appendix D and the NEO PI-R (Form S, self-report) personality test transition into advanced development, that is, Phase II. Phase II would consist of the following steps:

Step 1. Each item on the experimental biodata instrument (Appendix D) will be submitted to recruits and professional scrutiny to ensure that the content clearly (1) is expressed in relevant language, (2) provides an array of options that are relevant to the current culture, (3) is acceptable under current legal and political constraints, (4) represents a leadership factor, and (5) is non-offensive. Items will be revised or deleted in response to these evaluations.

Step 2. Both measures will be pilot tested simultaneously on the same samples. The biodata pilot test will allow us to develop factor scales and determine each factor's homogeneity, obtain estimates of the scales' reliabilities, establish the items' social acceptance, and provide preliminary estimates of each scale's validity. Simultaneously, estimates of the personality scales' validities will be derived. All measures, personality and biographical data, will be administered to two small random samples consisting of equal groups of senior enlisted personnel from several ratings. Simultaneously, measures of each participant's leadership competence will be acquired. The set of ratings will include technical and non-technical ratings, and the participants will represent black minority and white personnel with widely divergent leadership capabilities.

Step 3. This step will consist of analyzing the data and establishing whether any scales from the experimental set of measures have demonstrated sufficient concurrent validity for them to be developed further and placed into operational use.

An additional recommendation would be to initiate exploratory development and/or basic research on a personality instrument that

is designed specifically to measure the personality characteristics that are represented in effective leaders. It is apparent from both literature searches that such an instrument does not exist at the present time.

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Appendix A

Leadership Characteristics and Behavior Assessment of Potential for Leadership Project

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Leadership Characteristics and Behavior

Throughout history a vast number of attempts have been made to define the domain of leadership and to discover what traits, abilities, behaviors, or aspects of a situation determine a leader's effectiveness. Leadership has been described as a focus of group processes, as a matter of personality characteristics, as the art of inducing compliance, as the exercise of influence, as particular behaviors, as a form of persuasion, as a power relation, as an instrument to achieve goals, as an effect of interaction, as a differentiated social role, as initiation of structure, and as a combination of many of the above elements (Bass, 1990). While some definitions may be more useful than others, none is widely agreed upon. Consequently, it is better to think of the various definitions as different perspectives on the complex multifaceted phenomenon of leadership. Therefore, researchers have concluded that leadership should be defined according to the phenomenon under study, and the purposes to be served by the definition (Campbell, 1977).

The purpose of the present study is to develop a technology that can be used to assess the potential of military recruits for achieving leadership grades (E-6 and higher) in technical ratings. Positions at these ranks coincide with civilian supervisory and foreman types of organizational leadership. The definition of leadership most fitting in these circumstances appears to be "the process of influencing the activities of an organized group toward organizational goal attainment," (Fleishman, Mumford, Zaccaro, Levin, Korotkin, & Hein, 1991; Rauch & Behling, 1984).

In attempting to predict leadership potential, we must first address several questions including: how should leadership be defined, what constitutes effective leadership, and what personality traits or behaviors are possessed by effective leaders? Although little research has been conducted specifically on leaders at lower organizational levels (Fleishman, 1953), we can gain insight into such questions by examining recent reviews of the leadership literature (i.e. Bass, 1990; Fleishman et al., 1991; Locke, 1991; Yukl, 1994).

Leadership Types

According to these reviews, one common factor in all leadership definitions is the involvement of a social influence process. Naturally, leadership only exists in relation to others—without followers a person cannot be a leader. Objective task accomplishment or goal achievement is another dimension present in most leadership definitions. In accordance with these commonalities, many leadership types involve descriptions of how leaders influence followers to commit to and achieve a mission.

The three main leader classifications are charismatic, transformational, and transactional (Bass, 1990; Fleishman et al., 1991; Yukl, 1994). Charismatic and transformational leadership are very similar in definition, and the terms are often used interchangeably. However, they will be dealt with separately in this report.

Charismatic leaders possess a natural talent for arousing enthusiasm and commitment in others. According to House (1977), followers perceive a charismatic leader's beliefs as correct, accept the leader without question, are emotionally involved in the mission of the organization, and have high performance goals. Leader attributes like self-confidence, strong convictions, poise, proficient speaking ability, and a dramatic flair are most often associated with charisma (Yukl, 1994). While charismatic leaders can have a tremendous influence on an organization, such influence is limited unless a context exists that makes the leader's attributes and vision uniquely relevant to followers' needs. Several other studies have also provided varying degrees of support for House's charismatic theory (Yukl, 1994).

According to Bass (1990), transformational leaders motivate followers to do more than they originally expected to do by convincing them to transcend their own self-interests for the good of the group; to consider their longer-term needs, rather than their needs of the moment; and to become more aware of what is really important. Unlike charismatic leaders who are very self-oriented, transformational leaders focus more on the well-being of the group and develop a structure of command capable of functioning in their absence. Transformational leaders also work to change the culture or framework of an organization, in order to adapt to changing environmental demands and requirements.

Another difference between charismatic and transformational leadership is that researchers consider transformational leadership to be a behavioral process capable of being learned and managed, rather than an inborn talent (Tichy & Devanna, 1986). Transformational leaders are also described as being insightful, inspirational, considerate, and innovative (Bass, 1990).

In contrast with charismatic and transformational leadership, transactional leaders motivate followers by appealing to the followers' self-interest rather than using emotional persuasion (Burns, 1978). Transactional leadership emphasizes the exchange of rewards and benefits for a subordinate's fulfillment of agreements with the leader (e.g. politicians exchange promises for votes). Additionally, transactional leaders focus mainly on developing standard procedures and reward structures useful for obtaining the present goal (Bass, 1990)

Although differences exist between leadership types, they are not completely independent of each other. The same leader may use all types of leadership at different times in different situations. For example, the form of leadership exhibited by foremen and supervisors appears to be a mixture of both transformational and transactional leadership. Likewise, a specific leader behavior may have a different effect on followers depending on the current situation, the prior history of interaction between the leader and followers, and the way the behavior is interpreted by followers (Bass, 1990). Therefore an extraordinary amount of research has been directed towards discovering what the most effective leadership qualities are, and how situational differences mediate what is effective behavior.

Traits and Skills Related to Effective Leadership

Leadership reviews list a complexity of traits and skills that are considered to be determinants of effective leadership. The problem now faced is to differentiate the items essential to effective leadership (as defined for our purpose), from those that are merely helpful. Early trait studies, during the 1930s and 1940s, attempted to identify specific physical and personal qualities characteristic of leaders that other people did not possess. However, these studies failed to discover any traits that could guarantee leadership success.

More recent surveys attribute the past trouble in finding a strong relationship between leader attributes and effectiveness to the fact that having certain personality traits is necessary, but not sufficient for effective leadership (Locke, 1991; Yukl, 1994). Possession of particular traits increases the likelihood that a leader will be effective, but does not guarantee it. Leaders must also have the knowledge, skills, and abilities necessary for accomplishing their goals. Although the importance of specific leadership traits has been shown to depend on the nature of the situation, Zaccaro, Foti, and Kenny (1991) found that the same individuals tended to emerge as group leaders even when situational requirements were varied. These same individuals were also more likely than nonleaders to engage in the specific behaviors required for task completion. So what characteristics make such universal leadership emergence possible?

In Stogdill's 1974 review of 163 trait studies, the qualities found most often to be related to leadership effectiveness include: a high energy level, stress tolerance, self-confidence, persistence, integrity, emotional maturity, ambition, and adaptability. Additionally, Stogdill found the following abilities to be relevant to effective leadership: interpersonal skills, cognitive/conceptual skills, technical skills, and administrative (i.e. planning, delegating, organizing) skills. Once again the relative importance of any quality or skill depends on the situation, organization, and level of command. For example, technical skills seem to be more important at lower leadership levels, while cognitive skills seem to be more important at higher levels (Yukl, 1994).

Locke (1991) has developed a comprehensive model of essential leadership elements by integrating recent theories from books dealing with studies of actual organizational leaders. His model stresses four key concepts of leadership: (1) motives and traits; (2) knowledge, skills, and ability; (3) developing a vision; and (4) implementation of the vision. The first two concepts are most relevant to lower leadership levels in organizations and will be discussed more in depth.

According to Locke, effective leaders possess the core motives of drive and leadership motivation, plus the core traits of integrity, honesty, and self-confidence. Based on evidence from previous leadership studies, he divides the general motive of drive into more specific subunits. These divisions and supporting evidence include: **achievement**—the desire to complete challenging assignments (Bass, 1990; Yukl, 1989); **ambition**—the desire to get ahead (Cox & Cooper, 1988; Howard & Bray, 1988); **energy**—the ability to

sustain a high achievement drive (Bass, 1990; Cox & Cooper, 1988); **tenacity**—persistence when results are not immediately observed (Bass 1990); and **initiative**—the ability to make choices and produce change (Bass, 1990; Kouzes & Posner, 1987). Leadership motivation is defined as the desire to influence others or the need for power (Howard & Bray, 1988; Yukl, 1989). Along with studies implicating integrity, honesty, and self-confidence as necessities for effective leadership (Bass, 1990; Bennis & Nanus, 1985; Kouzes & Posner, 1987), Locke identifies a smaller number of inconclusive studies which also relate traits such as originality, flexibility, and charisma to effective leadership (Bass, 1990).

Although possessing the core motives and traits by themselves does not make a leader effective, these motives and traits can help a person acquire the necessary knowledge and skills to complete the process. Locke requires that an effective leader also possess technological expertise (Bass, 1990), knowledge of the organization (Kotter, 1982), interpersonal skills including consideration, listening, expressiveness, and conflict-management (Bennis & Nanus, 1985; Cox & Cooper, 1988; Howard & Bray, 1988; Yukl, 1989), administrative skills such as problem-solving, decision-making, and planning (Howard & Bray, 1988; Kotter, 1982), and cognitive ability/intelligence (Howard & Bray, 1988; Kotter, 1982; Yukl, 1989).

Behaviors Related to Effective Leadership

Aside from the above dimensions, several different taxonomies of leadership behavior have been proposed (Fleishman et al., 1991; Yukl, 1989). As with leadership definitions, these taxonomies also reflect the two common dimensions of influencing group interaction and objective task accomplishment. However, the orientation of such classification structures depends on the theoretical framework of the investigators. Additionally, the relative importance of any behavior category varies across situations.

Consequently, Fleishman et al. (1991) attempted to develop a taxonomy of the basic, core activities necessary for the effective generation, selection, and implementation of problem solutions in organizational goal achievement. Their classification system specifies three core dimensions of leadership activity, which are further divided into 13 interacting Leader Behavior Dimensions (LBDs). The fundamental dimensions include: information search and structuring, information use in problem solving, and managing

material and personnel resources. The 13 LBDs essential in effective leadership are as follows: acquiring information, organizing and evaluating information, identifying needs and requirements, planning and coordinating, communicating information, obtaining and allocating material resources, maintaining material resources, utilizing and monitoring material resources, obtaining and allocating personnel resources, motivating personnel resources, developing personnel resources, utilizing and monitoring personnel resources, and feedback and control.

Yukl (1989) also proposed a taxonomy of leader behavior applicable to any leader or manager. His classification consists of 14 generic behavior categories: **clarifying**—assigning and directing work, plus specifying goals, deadlines, responsibilities, and expectations; **developing**—training subordinates and improving skills; **motivating**—generating enthusiasm and commitment; **planning**—determining long-term objectives, organizing, and obtaining and allocating resources; **problem solving**—identifying, analyzing, and resolving problems or crises; **monitoring**—evaluating the progress and quality of work, plus recognizing possible external intervening factors; **consulting**—considering and involving others in decision making; **informing**—briefing subordinates and reporting to superiors; **recognizing and rewarding**—providing praise and tangible rewards for effective performance; **supporting**—showing consideration, patience, sympathy, and guidance; **team building**—encouraging cooperation and increasing awareness of shared purpose and mutual dependence; **networking**—obtaining information from contacts outside the immediate unit; **disciplining**—ensuring adherence to regulations and maintaining performance standards; and **delegating**—assigning responsibility and decision making authority to subordinates.

As mentioned previously, the relative importance of different leadership behaviors depends on the situation. In order to discover which behaviors are optimal, several studies have examined how the effects of leadership differ from situation to situation. Primarily, these studies have been based on contingency theories, or theories of what aspects of a situation enhance or nullify a leader's effectiveness (Yukl, 1994). Three contingency theories of leadership will be reviewed briefly here: path-goal theory, least preferred coworker (LPC) theory, and cognitive resources theory.

The path-goal theory focuses on how the behavior of a leader influences the satisfaction and performance of subordinates, depending on task and subordinate characteristics. Four leader behaviors are included in the most recent version of path-goal

theory (House & Mitchell, 1974). These behaviors are supportive leadership (i.e., consideration, concern, and friendliness), directive leadership (i.e., specific guidance, assigning duties, and enforcing rules), participative leadership (i.e., considering subordinate opinions and suggestions), and achievement-oriented leadership (i.e., setting goals, seeking high performance, and having confidence in subordinates).

As stated by Yukl (1994), the use of supportive leadership is optimal when the task is stressful, boring, tedious, or dangerous. Directive leadership results in higher subordinate satisfaction and effort when the task is unstructured and complex, or the subordinates are inexperienced. Participative and achievement-oriented leadership are both hypothesized to increase subordinate satisfaction and effort when the task is unstructured. It is hypothesized that an effective leader has a superior ability for perceiving the situation and modifying his/her tactics accordingly (Zaccaro et al., 1991).

The LPC theory describes how the situation can moderate the relationship between leadership traits and effectiveness (Fiedler, 1967). LPC is a trait measure obtained by asking a leader to select a past or present co-worker with whom he or she conflicted, and rate the co-worker on a set of characteristics (e.g., friendly-unfriendly, efficient-inefficient). Critical rating of the co-worker resulted in a low LPC score, while lenient rating resulted in a high LPC score. Interpretation of this measure states that leaders with high LPC scores are concerned more with relationships and less with task achievement. Therefore, they would be most effective in moderately favorable conditions. Conversely, leaders with low LPC scores are concerned most with achievement of task objectives and would do best in very favorable or very unfavorable conditions. Fiedler defines favorability as the extent that a situation gives a leader control over subordinates.

Cognitive resources theory is another situational model designed by Fiedler (Fiedler & Garcia, 1987). This theory examines the conditions under which a leader's intellectual abilities are related to group performance. Fiedler hypothesizes that the performance of a group relies on a complex interaction among a leader's intelligence and experience, his/her directive leadership behavior, and the nature of the situation, including interpersonal stress and purpose of the task. However, it is questioned whether this interaction applies to simple, routine tasks that subordinates already know how to perform. Cognitive resources theory is somewhat new on the scene and not enough studies have been conducted to evaluate it further.

Conclusions

From the available evidence, it is clear that in crucial respects leaders are different from nonleaders. Successful leaders are considered to be very self-confident and persistent, have a high energy level, plus a desire to lead and achieve, and exhibit integrity and emotional maturity. In order to be effective, a leader at a lower organization level cannot exhibit a deficiency in any of these core traits. However, these traits alone do not make a leader effective. Leaders must also have or be able to acquire the knowledge and skills necessary for developing and achieving their goals. It is essential that a successful leader also be skilled in interpersonal relations (i.e., ability for listening, expressiveness, and conflict-management), since interaction with subordinates is an extremely important aspect of leadership.

Researchers have shown that the relative importance of a behavior definitely depends on aspects of the situation and level of command, therefore, it is difficult to generally specify the most effective leadership behaviors. However, we can extract behavior categories most relevant to low level leadership from Yukl's taxonomy of leader behavior. Important leader behaviors include: clarifying, problem solving, short-term planning, consulting, informing, recognizing and rewarding, team building, delegating, and disciplining.

Although Fleishman et al. (1991) core leadership activity dimensions are similar to Yukl's (1989)taxonomy, Fleishman and his colleagues expands more on the problem solving aspects of leadership. Therefore, it is also important to consider some of these fundamental leadership dimensions in our present project. Relevant dimensions include: information search and structuring (i.e. acquiring, organizing, and evaluating information), information use in problem solving (i.e. identifying needs, planning, coordinating, and communicating), and managing material and personal resources.

As a result of the mixed support given to contingency theories, they cannot be reliably applied for our particular purpose. Overall, it seems logical that a successful leader should have the ability to assess different situations, and then use his/her knowledge and past experience to react in the most efficient manner.

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Appendix B

Using Personality Assessment for Leadership Selection

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Using Personality Assessment for Leadership Selection

Background

Leadership career development is a concern for individual military personnel and for military organizations. Individuals want career opportunities for realizing personal objectives such as advancement, financial rewards, and intrinsic satisfactions from work. Organizations want assignment strategies that provide optimal distribution of personnel for operational readiness.

Initial entry level selection procedures are designed to ensure that recruits can master the technical components of their Navy occupational specialties. Mental ability is the best available predictor for technical proficiency (Hunter & Hunter, 1984; Schmitt, Gooding, Noe, & Kirsch, 1984) and therefore is a focus of entry level selection. As careers progress, seniority typically will be accompanied by increased responsibility for administrative and leadership tasks. These added responsibilities may be performed most effectively by key people who possess specific personality characteristics.

Is it possible to use personality measures to identify potential leaders early in their military careers? This question is the primary focus of the present report. Derivative questions include: What specific personality attributes are important for leadership? Are measures taken early in one's career effective in predicting leadership potential at later points? How can personality measures best be combined with current screening based on mental ability? Can problems such as adverse impact, faking, and related issues be satisfactorily resolved?

Organization of the Paper

This paper is organized in three sections. The first section addresses the central question:

> What evidence is there that personality is related to military leadership?

Should personality be measured as broad dimensions (e.g., extraversion) or narrower constructs (e.g., assertiveness)?

Answering these questions produces a leadership personality profile based on recurring themes in the review.

The second section deals with the use of personality variables in selection programs. Questions addressed include:

Is personality sufficiently stable over time in young adults to use personality measures taken early in a Navy career to forecast mid- to late-career leadership capacities?

Can career experiences develop leadership potential by changing personality?

Do factors such as social desirability and faking make it impossible to use personality measures in selection programs?

Are personality indicators biased against particular demographic groups?

Is personality redundant with other selection criteria, notably mental ability?

What available personality measures are most suitable for assessing leadership potential?

Answers to these questions indicate that personality measures can be useful in selection programs.

The final section presents suggestions pertaining to the implementation of personality-based selection for leadership.

The Five-factor Model of Personality

A broad range of personality attributes is examined in the leadership literature with little or no overlap in the specific measures considered in different studies. A general personality measurement model commonly referred to as the "five-factor model" of personality, or "FFM" for brevity, provides a frame-of-reference, which can help identify consistencies between studies despite the variation in specific measures used in particular studies. The FFM divides personality into five major domains described in Table 1. The terms representing the domains were taken from McCrae and Costa (1992) and Goldberg (1992). The chosen terms represent only

attributes associated with a high score on the dimension as labelled. Other terms with approximately opposite meanings would be associated with low scores (e.g., disorganized, careless for the conscientiousness domain). More detail on the FFM can be found in many sources (e.g., Costa & McCrae, 1985, 1992; John, 1990).

Table 1

Domain Content of the Five-factor Model of Personality

Domain	Representative Adjectives
Neuroticism	Anxious, fearful, worrying, irritable, impatient, excitable, pessimistic, moody, sarcastic, hasty, temperamental, envious, insecure, touchy, high-strung
Extraversion	Friendly, warm, cheerful, social, outgoing, aggressive, assertive, forceful, enthusiastic, energetic, quick, determined, active, daring, adventurous, humorous, spontaneous
Openness	Dreamy, imaginative, idealistic, artistic, original, inventive, versatile, interests wide, curious, unconventional, intellectual, complex, deep
Agreeableness	Forgiving, trusting, peaceable, warm, soft-hearted, gentle, generous, kind, tolerant, sympathetic, soft-hearted, helpful, considerate, sympathetic
Conscientiousness	Efficient, self-confident, thorough, resourceful, organized, precise, methodical, ambitious, industrious, enterprising, determined, persistent, thorough, steady, prompt

Note. Labels in bold face are used to refer to the general domain in the remainder of this report. Adjectives indicate only the positive indicators of the personality variable.

The FFM is a basis for organizing and evaluating study designs. This model will not be the recommended basis for measuring personality indicators of leadership capacity. It will be evident below that not all of the indicators in a given domain have the same significance for leadership. For example, achievement motivation and striving for high standards appear important in the conscientiousness domain, but orderliness and dutifulness do not. The most complex example may be the agreeableness domain where the leader must display trust and honesty, while not necessarily being generous or altruistic. Again, the primary uses of the FFM are to classify scales across studies for the purposes of determining

breadth of coverage of the overall personality domain and to highlight consistency in the face of diverse specific measures.

Personality and Military Leadership Potential

Is personality related to leadership? The empirical evidence bearing on this question is reviewed below. A search of the PsychLit computerized data base for 1974 through 1993 was made using the key words "personality" and "leadership" to select articles of potential interest. The search produced a total of 479 articles for the 20-year period. Further review of the abstracts indicated that only 91 articles actually provided empirical data relevant to the present objectives.

The 91 articles with empirical data on personality and leadership were examined for relevance to military leadership. Articles that dealt with leadership in laboratory studies of group dynamics or election to positions of leadership in voluntary organizations were dropped from further consideration. Those studies involved organizations that differed widely from Navy work settings with regard to purpose, bases for organization membership, rewards to leaders and subordinates, and so on. While leadership may require the same attributes in all settings, it is possible that the attributes of a leader vary across situations. If so, including studies from settings that are radically different than the Navy organization would confuse the picture when attempting to identify personality correlates of leadership in the Navy.

Some articles dealt with leadership in civilian work organizations. Generalization from these settings to military organizations appears to be justifiable for job performance in general (Kamp & Hough, 1988) and may be so for leadership (Gough, 1984). However, here again, differences in organizational structure, organizational philosophy, the nature of the product provided, career development patterns, and other factors raise the possibility that results obtained in other settings will not apply to military organizations in general and the Navy in particular. If the same personality factors are relevant to leadership in both military and civilian work settings, the military literature should produce the same personality profile as would be derived from the combined military civilian literature. However, if the differences noted above alter the requirements for effective leadership, combining the two literatures would produce an amalgamation of trends that would obscure the military leadership profile. Based on this reasoning, the review was limited

to military leadership studies to minimize the risk of erroneous inference. Although it might have been desirable to restrict the analyses even further and focus solely on Navy leadership studies, there was too little research available to impose this further restriction.

The focus on military leadership appeared to offer the best trade-off between having enough data to verify general trends without having to generalize too broadly across different types of situations. The five articles pertaining to this topic covered all branches of the service, but emphasized officer populations.

The results of these studies are summarized and criticized below in two phases. The first phase provides a general description of each study and summarizes findings in terms of the broad FFM dimensions. The results presented in this phase make a case that personality is related to leadership potential and point out general limitations of the available evidence. The second phase of the review extends the analysis of personality to specific facets. The evidence is reviewed for indications of differential correlations between leadership criteria and specific personality attributes within the general FFM dimensions.

Phase 1: Military Leadership and General Personality Dimensions

West Point Leadership

Gough, Lazzari, Fioravanti, and Stracca (1978) utilized Gough and Heilbrun's (1965) Adjective Check List (ACL) inventory to identify personality correlates of leadership ratings in West Point cadets (n = 523). The ACL measures 19 personality attributes from a "folk concepts" perspective. Folk concepts represent the ways that people organize their everyday perceptions of the behavior of other people. These concepts do not correspond precisely to more formal scientific attempts to isolate key areas of personality (Tellegen, 1991) and typically provide measures that are mixtures of the five major dimensions of personality comprising the FFM (Piedmont, McCrae, & Costa, 1991). However, the folk concepts do provide a useful framework for describing general aspects of behavior. These descriptions, then can be used to approximate five-factor measures and as a basis or starting point for more formal scientific descriptions of behavior (Tellegen, 1991).

The criterion was an "Aptitude for Military Service Rating" (ASR). This criterion was based on ". . . peer evaluations, ratings by cadet officers, and by tactical officers" (p. 385). These ratings have been reported to have substantial validity for predicting criteria such as combat performance, promotion to field grade posts, and standard officer ratings. The ASR was only moderately related to academic performance (r = .37), so it cannot be thought of as merely a measure of intelligence or academic capabilities.

Personality variables,which correlated r = .10 (absolute) or more with the leadership criterion, are shown in Table 2. Table 2 also maps the ACL scales onto a standardized measure of the FFM based on findings reported by Piedmont, McCrae, and Costa (1991). The most obvious conclusion is that the leadership criterion has a complex relationship to personality. Four of the five FFM domains are indicated in the table. The openness domain is not included in the table, but this absence may be attributable to the fact that the ACL scales include few openness indicators (Pietmont, et al., 1991).

Table 2

Personality Correlates of Aptitude for Military Service in West Point Cadets

ACL Scale	Correlation to Leadership	Related FFM Dimensions
Succorance	-.22	N, C-
Endurance	.21	C, N-
Self-control	.19	E-, A
Achievement	.18	C, E
Order	.17	C, N-
Dominance	.15	E, A-
Affiliation	.14	N-, A, E
Nurturance	.12	A
Personal Adjustment	.12	N-, A, C
Aggression	-.12	A-
Self-confidence	.10	E, N-
Autonomy	-.10	A-
Abasement	-.10	A, E-, N

Note. ACL scales were matched to an FFM dimension if their correlation to that dimension was r = .29 or greater (absolute value) in Piedmont, et al. (1991).

Junior Officers of the U.S. Coast Guard

Blake, Potter, and Slimak (1993) examined relationships between scales from the California Psychological Inventory (CPI) (Gough, 1987) and performance ratings of U.S. Coast Guard Academy Graduates (n = 120, 13 of whom were female, 5 of whom were minorities) who had been commissioned for two years at the time of the study.

The performance criterion was an overall 5-point "officer effectiveness rating." This rating represented the judgment of two officers who participated in the study. These officers had experience in billets comparable to those occupied by the study group. Their ratings were based on performance ratings contained in the standard organizational records for the study group. These records included ratings every six months on behaviorally-anchored rating scales for 23 attributes. Based on these ratings, the two officers constructed 5-group classification that distinguished outstanding junior officers who received comments like "best ever" in their ratings (n = 8) from those "highly recommended for command, but not 'best ever'" (n = 25), those who were "solid performers" (n = 28), below average performers with persistent flaws (n = 16), and, finally, a group that failed selection for promotion (n = 7). The analysis assigned scores of "5" those individuals in the outstanding junior officer group, "4" to the highly recommended group, down to "1" for those who were not promoted.

The criterion for inferring a relationship between personality and the leadership rating in these analyses was r = .20 (absolute) or greater. This criterion was more stringent than that applied to the Gough, et al. (1978) data because fewer people were studied by Blake, et al. (1993). The smaller sample size meant that correlations satisfying the r = .10 criterion were likely to occur by chance. Correlations equal to .20 or more in absolute magnitude were statistically significant ($p < .05$) given the sample size in Blake, et al. (1993) study. Six of 18 scales met the criterion (Table 3).

The CPI scales were mapped onto the FFM based on findings reported by McCrae, Costa, and Piedmont (1993). Once again, four of five FFM domains are represented in the mapping. As in the Gough, et al. (1978) study, higher leadership ratings appear to be found in extraverted, emotionally stable, conscientious individuals.

Apparent differences between the FFM profile for leadership in Blake, et al. (1993) study and Gough, et al. (1978) study may be a function of the questionnaires used. Blake, et al. (1993) findings suggest that leaders will be high on openness and leave

Table 3

Personality-Leadership Correlations in Coast Guard Officers

CPI Scale	Correlation to Leadership	Related FFM Dimensions
Dominance	.37	E, N-, O
Intellectual Efficiency	.24	O, N-
Responsibility	.24	C
Self-acceptance	.21	E, O
Well-being	.21	N-
Good Impression	.20	N-, C

agreeableness out of the list of personality correlates of leadership. Gough, et al. (1978) findings suggest that high agreeableness is important for leadership, while openness is irrelevant. However, McCrae, et al. (1993) findings suggest that high agreeableness is important for leadership, while openness is irrelevant. However, McCrae, et al. (1993) found that the CPI lacks indicators of agreeableness. Piedmont, et al. (1991) reported that the ACL lacks indicators of openness. When the two studies are considered in combination, therefore, all five domains of the FFM were implicated as factors in leadership and the results that could be replicated across studies were.

Academic and Leadership Performance at the U.S. Naval Academy

Atwater (1992) examined mental ability and personality as predictors of performance at the U.S. Naval Academy ($n = 99$). Performance measures included cumulative grade point average (GPA) at the Naval Academy, a cumulative training performance rating based on individual ratings made by the midshipman's superior officer each semester at the academy, a supervisor's rating of performance during a 3 1/2 week summer leadership assignment indoctrinating incoming freshmen, and ratings by subordinate's during the indoctrination course.

Personality measures in this study were indicators of emotional stability and conscientiousness taken from Cattell's 16-PF (Cattell, Eber, & Tatsuoka, 1970). Emotional stability was not related to any of the performance ratings (absolute $r < .09$). Conscientiousness was related to superior satisfaction with leadership during the summer course ($r = .16$), but not to any other performance indicator (absolute $r < .10$).

Atwater's (1992) findings added to the evidence that conscientiousness is related to leadership. However, this personality attribute was related only to the leadership ratings provided by the individual's supervisor and not ratings by subordinates. Unlike the previous studies, emotional stability was not related to performance. Inferences about the other three domains were not possible because no indicators of those domains were included in the predictor set.

Project A

Project A was a U.S. Army study of ability and temperament predictors of job performance in nine Army enlisted military occupational specialties (MOSs). The study involved over 4,000 job incumbents who completed paper-and-pencil measures of job knowledge as well as performing hands-on tests of actual job performance. Performance measures were reduced to:

1. Core Technology (i.e., the ability to perform the basic technical requirements of one's job).

2. General Soldiering Proficiency (i.e., the ability to perform certain tasks, which were not specific to the job such as first aid).

3. Effort and Leadership (i.e., working hard on the job and providing an example for others).

4. Personal Discipline (i.e., proper control and direction of one's behavior on the job).

5. Military Fitness and Bearing (i.e., physical fitness level and military appearance).

Individual differences on the measures of technical proficiency were only weakly related to individual differences on the effort, fitness, and bearing dimensions.

Performance predictors included measures of conscientiousness and emotional stability. The conscientiousness domain was represented by two indicators, achievement orientation and dependability. Emotional stability was assessed by a single scale. Relevant findings were:

1. Temperament measures were weak predictors of core and general job proficiency ($r = .10$ for each predictor-criterion combination).

2. Temperament measures were stronger predictors of effort and leadership, personal discipline, and military fitness and bearing ratings (median $r = .22$; range from $r = .11$ to $r = .30$). Achievement motivation and dependability were stronger predictors than emotional adjustment.

3. Controlling for differences in cognitive ability, temperament added little to the prediction of job proficiency, but substantially improved prediction of the behavior criteria.

The effort and leadership criterion merits closer attention for the present purposes. This criterion was defined as reflecting the ". . . degree to which the individual exerts effort over the full range of job tasks, perseveres under adverse or dangerous conditions, and demonstrates leadership and support toward peers." (McHenry, Hough, Toquam, Hanson, & Ashworth, 1990, p. 342). This criterion was related to the measures of achievement motivation ($r = .30$), dependability ($r = .20$), and adjustment ($r = .19$), but was at best weakly related to measures of cognitive ability (e.g., $r = .07$ for verbal ability).

These findings fit with previous trends. Conscientiousness was linked to leadership for the fourth time in four studies. Emotional stability was linked to leadership for the third time in four studies. No comments on the other FFM domains are possible because measures for these domains were not included in the study.

Early Promotion of Air Force Officers

The foregoing studies focus on leadership ratings. Santens and Walker (1983) provided a study with a different criterion that may reflect leadership. Their study compared Air Force officers who were promoted ahead of schedule to officers promoted on schedule. This criterion can plausibly be interpreted as a combination of demonstrated task proficiency and some demonstration of leadership potential. Ratings such as those considered in the prior studies play a part in the promotion decisions, so promotion criteria can be expected to show a profile similar to that for the other leadership studies.

The 16-PF (Cattell, et al., 1970) provided personality measures in Santens and Walker's (1983) study. The early promotion group were more outgoing, assertive, venturesome, suspicious, and apprehensive than those promoted on schedule. Evidence on the relationships between 16-PF scales and FFM measures provided by Gerbing and Tuley (1991) translate the observed differences

associated rapid promotion into higher neuroticism (apprehensiveness), higher extraversion (outgoing, warm, venturesome), and lower agreeableness (suspiciousness).

The running tally of findings changes significantly with the addition of the Santens and Walker (1983) findings. The association between early promotion and extraversion is a qualitative replication of two prior findings. However, the association between higher neuroticism and advancement is contrary to the general trend in other studies. The association between lower agreeableness and advancement is contrary to the findings of Gough, et al. (1978). Note also that conscientiousness was not related to advancement and the results provide a third inconsistency compared to trends in other studies.

The inconsistencies between the Santens and Walker (1983) results and other findings could be explained several ways. The specific type of criterion considered may be a factor. The officer population being studied is highly select and may fail to demonstrate some associations because all of the personnel are quite similar (e.g., all are conscientious, so this factor is a constant). It is also possible that the results were simply chance.

Summary of Previous Findings

The preceding review can be summarized at two levels. The first level of summary characterizes the populations considered. Four of five studies involved officers or officer candidates. Three of the five studies demonstrated that the leadership criterion was distinct from task proficiency (or academic proficiency). Only Santens and Walker (1983) employed a criterion that can clearly be regarded as a composite variable.

One deficiency that applied to most of the studies was noteworthy. Only Santens and Walker (1983) employed a personality inventory that covered all five domains of the FFM. Two studies specifically limited the focus to two of the five domains. Combining this observation with the points noted above produces a somewhat disappointing observation. No study has combined comprehensive personality domain coverage with a well-defined leadership criterion. Obviously, this point defines a significant limitation of the available evidence.

The general pattern of associations between personality and military leadership is summarized in Table 4. The four studies, which relied on leadership ratings as criteria, consistently indicated that conscientiousness was related to better leadership. Three of those

four studies showed that emotional stability was related to better leadership. Mixed findings within some studies and/or omission of important domains in other studies make it impossible to make confident statements about the remaining domains. Overall, available evidence supports the position that personality is related to leadership, but provides a vague picture of the actual pattern of relationships.

Table 4

Five-Factor Model Summary of Military Leadership Findings

Activities	N	E	O	A	C
West Point	-	M	?	M	+
Coast Guard	-	+	+	?	+
Naval Academy	O	?	?	?	+
Army Project A	-	?	?	?	+
Air Force	+	+	?	-	O

Note. Column Headings: N = Neuroticism, E = Extraversion, O = Openness to Experience, A = Agreeableness, and C = Conscientiousness.

The leadership criteria also merit comment. Personality measures cannot be validated as indicators of leadership potential without a well-defined, properly measured criterion variable. Limitations of the leadership criteria could be suggested for virtually all of the studies. Should being promoted to a position of increased leadership responsibility be assumed to reflect past demonstrations of leadership? If the essence of leadership is obtaining the concerted support of subordinates in the pursuit of organizational goals, are supervisor ratings of leadership appropriate? Note that in the one study that involved subordinate ratings as well as supervisor ratings, the two sources of information produced different results (Atwater, 1992). The implication of these questions is that the findings summarized here should be interpreted with caution until the linkages between a well-defined concept of leadership and the present set of indicators (i.e., ratings and advancement). Unfortunately, the study that used the most carefully validated measure of leadership failed to cover all the FFM domains and did not analyze personality at the level of specific facets (Gough, et al., 1987).

Phase 2: Specific Personality Correlations of Leadership

The second phase of the review of personality and military leadership extends the level of analysis down from general dimensions to more specific personality attributes. The central question in this portion of the review was whether relationships between leadership and personality are variable within the broad FFM domains. For example, suppose assertiveness is important for leadership, but sociability is not. Both behavioral tendencies are included in measures of extraversion. In this example, however, a measure that focused specifically on assertiveness would be preferable to an overall extraversion measure for selecting leadership candidates. Evidence reviewed below indicates that specific elements within the broader domains should be considered in the areas of conscientiousness, agreeableness, and extraversion.

Sources of Data

The detailed examination of leadership correlates within general personality domains is limited to the studies by Gough, et al. (1978) and Blake, et al. (1993). The methods of drawing inferences are slightly different in the two instances, so the approaches are reviewed briefly here to provide context.

The construction of an adjective checklist scale for leadership made finer analysis of the personality correlates of leadership possible in the Gough, et al. (1978) study. This scale consisted of 50 adjectives, which correlated with leadership ratings in the West Point sample and in two samples of Italian officer candidates. Inferences about the relevant attributes within a given domain have been developed by first grouping the 50 adjectives with regard to the FFM, then looking to see whether specific attributes show different patterns of association to leadership within domains.

As an example of the treatment of the Gough, et al. (1978) findings, consider the adjectives "enthusiastic" and "noisy." Both were classified as positive indicators of extraversion. The former is positively related to leadership ratings, but the latter is negatively related to leadership ratings. This differential suggests that it is important to make distinctions between specific behaviors within the extraversion domain.

The strategy for translating Blake, et al. (1993) findings into more detailed evaluations began by listing the scales that correlated with leadership ratings. Facet-level profiles for each leadership correlate

within each domain were determined from McCrae, et al. (1993). If two facets had correlations, which differed substantially in magnitude or sign of relation to the CPI scale of interest, this differential was a basis for inferring the stronger predictor(s) should be measured to predict leadership.

An example of this approach is provided by considering the relationships between the CPI Dominance scale and NEO Agreeableness facets. Dominance was a correlate of leadership. The facet-level profile for this CPI within the Agreeableness domain included a positive correlation to Trust and negative correlations to all other facets. This difference suggests that trust of others should be discriminated from Agreeableness facets when constructing leadership screening profiles.

The results of applying these approaches to the two studies are summarized below for each FFM domain. The objectives are, first, to determine whether there is any evidence of within-domain differences, and second, whether the differences from the two studies replicated one another in any way.

Neuroticism

None of the 50 adjectives comprising Gough, et al. (1978) leadership scale was classified as an indicator of neuroticism.

The Blake, et al. (1993) findings also translated into a largely undifferentiated view of neuroticism. Three of the six CPI scales, which predicted leadership ratings (see Table 3), were substantially related to neuroticism indicators in the McCrae, et al. (1993) study. All six NEO Neuroticism facets were related to Good Impression and Well-being. However, only three facets, Depression, Self-consciousness, and Stress Vulnerability were related to the CPI Dominance. This latter scale is the best CPI indicator of leadership (Megargee, 1972).

These findings suggest that depression, self-consciousness, and stress vulnerability may be key elements of neuroticism for leadership. However, there is no replication across studies or even across the several scales that correlated with leadership within the Blake, et al. (1993) study.

Extraversion

The 50 Gough, et al. (1978) adjectives included alert, enthusiastic, strong, show-off, and noisy. All of these adjectives would be indicators of high extraversion in most schemas, but the first four were positively related to leadership ratings and the last two were negatively related to leadership. One interpretation is that the exhibitionistic elements of extraversion not only are not indicators of leadership potential, they actually lower potential.

The Blake, et al. (1993) findings again provide some basis for believing that distinctions within the general domain are important. All six NEO Extraversion facets were related to both DPI Dominance and CPI Self-acceptance, but the strength of associations varied markedly. The average correlation between the two CPI scales and NEO Assertiveness ($r = .56$) was much larger than the averages for the remaining facets ($r = .30$ to $r = .38$).

The evidence suggests that assertiveness is a key component of extraversion. Exhibitionism is counterproductive. Sociability components of NEO extraversion were not related to leadership. The other positie adjective items are suggestive of the NEO facet of activity (alert, strong), but this facet did not stand out in the evaluation of the Blake, et al. (1983) findings.

Agreeableness

The Gough, et al. (1978) adjectives can be sorted into positive and negative indicators of agreeableness. Positive indicators include appreciative, cooperative, frank, honest, thoughtful, tolerant, moderate, and kind. Except for "kind," these adjectives were positively related to leadership ratings.

The negative adjective indicators for agreeableness were aggressive, demanding, bossy, hard-hearted, hostile, suspicious, tactless, quarrelsome, rude, and conceited. These indicators of low agreeableness were associated with poor leadership ratings with two exceptions. Being aggressive and demanding were associated with better leadership.

The Blake, et al. (1993) findings also translate into a complex picture relating leadership to agreeableness. NEO Trust was related to CPI Responsibility ($r = .38$), CPI Well-being ($r = .37$), and CPI Intellectual Efficiency ($r = .35$), but these three CPI scales were largely unrelated to the remaining NEO Agreeableness facets. Furthermore, NEO Trust was positively related to NEO Dominance

(r = .21), while four other NEO Agreeableness facets were negatively related to this scale (Straightforwardness r = -.11, Altruism, r = -.14, Compliance, r = -.27, and Modesty, r = -.24). Thus, NEO Trust was positively related to four CPI correlates of leadership ratings while the other five NEO Agreeableness facets were at least independent of those scales. If Dominance is the best CPI indicator of leadership potential, the other NEO Agreeableness facets actually appear negatively related to leadership.

The relationship between agreeableness and leadership clearly is complex. Both studies produced evidence that some positive indicators of agreeableness are associated with good leadership ratings while others are associated with poorer leadership ratings. The identification of common themes is difficult because there is no simple mapping from one study to the other. However, trust "suspicious" is considered an antonym of trusting. It might also be suggested that there is consistency in the findings that kindness and altruism are negatively related to leadership. Some frankness, a positive leadership marker for Gouth, et al. (1978), with NEO Straightforwardness, a probable negative correlate based on the Blake, et al. (1993) findings.

Conscientiousness

The adjectives that Gough, et al. (1978) included in their scale included capable, conscientious, deliberate, dependable, efficient, industrious, methodical, persevering, and responsible. All of these positive indicators of conscientiousness were positively related to leadership ratings.

Negative conscientiousness indicators were frivolous, shiftless, unambitious, and reckless. All of these negative indicators were negatively related to leadership ratings.

NEO Conscientiousness facets tended to be related to all of the CPI scales, which Blake, et al. (1993) found to be correlated with leadership ratings. However, there were differences in the strength of associations. NEO Competence, NEO Achievement Striving, and NEO Self-discipline (r = .10 to r = .51, average r = .31) were more strongly related to the CPI scales than were NEO Order and NEO Deliberation (r = .06 to r = .24, average r = .14).

Conscientiousness indicators were broadly related to leadership as would be expected from the results obtained with overall domain scales. Differentiation within the general domain was limited to differences in strength of association. Strength of association was

not reported for the Gough, et al. (1978) items, so the consistency of findings across studies cannot be evaluated on this key point. The Blake, et al. (1993) findings translate into an emphasis on achievement through self-discipline with less importance attached to being orderly, methodical, and deliberate. Some external validation of this differentiation is provided by the observation that effort and leadership was more strongly related to leadership striving (r = .30) than to dependability (r = .20) in Project A (McHenry, et al., 1990).

Openness to Experience

Adjective check list indicators of openness included civilized, independent, humorous, and wise as positive indicators. Negative indicators were dull, interests narrow, superstitious. The negative indicators were uniformly related to lower leadership ratings. Most positive indicators were related to higher leadership ratings, but there were two notable exceptions. "Humorous" and "wise" were negative indicators of leadership.

Four of six NEO Openness to Experience facets (Feelings, Actions, Ideas, and Values) produced moderate correlations to CPI Dominance, CPI Self-acceptance, and CPI Intellectual Efficiency (r = .15 to r = .39, average r = .28). The other two facets (Fantasy and Aesthetics) produced substantially weaker correlations (r = .08 to r = .23, average r = .15).

Once again, consideration of specific elements within a general domain may be important. The content of the NEO facets does not map onto the adjective indicators in any specific fashion. However, it may be worth noting that openness to ideas and values implies a tolerant and accepting view of other people. This component of the openness findings might be consistent with some elements of the agreeableness profile sketched above.

Summary

These fine-grained analyses make one general point clear. Detail is important when predicting leadership. In two FFM domains, positive indicators appear to be mixed with negative indicators. In the remaining FFM domains, stronger predictors appear to be mixed with weaker predictors. The phrasing "appear to be" is used in the foregoing statements because the issues implied in these statements have not been directly examined in any of the studies considered.

The conclusion from this part of the review augments an earlier conclusion about limitations of the available personality-military leadership literature. The point was made previously that no study of military leadership has combined a comprehensive assessment of the FFM personality domains with a well-established leadership criterion. The present observations add the following: No study has systematically sampled leadership-relevant facets within the general personality domains. The available evidence provides a strong basis for believing that personality predicts leadership criteria, but only crude guidelines regarding the specific leadership attributes that should be considered for this purpose.

Personality and Promotion in Navy Enlisted Ranks

The intent of the present paper is to identify personality correlates of leadership in Navy enlisted personnel. As noted above, prior studies have emphasized officer populations. Project A provides some indication that those results generalize to the enlisted ranks, but Project A employed a highly restricted set of personality measures and a criterion that combined leadership with effort. It would be useful to know that the picture of the military leadership personality available at this time applies to Navy enlisted personnel.

Data from an ongoing study of personality correlates of long-term career outcomes in Navy enlisted were examined in an attempt to link the previous literature to the Navy enlisted population. Preliminary findings from a more detailed report, which is being prepared (Vickers, Hervig, & Booth, in preparation), are presented here.

The study in question currently focuses on personality as a predictor of advancement in Navy hospital corpsmen. Personality was measured by the Comrey Personality scale (CPS) (Comrey, 1970). The CPS is a well-standardized personality inventory that covers all five FFM domains of the FFM (Noller, Law, & Comrey, 1987) with sufficient specificity to permit an evaluation of within-domain hypotheses. The specificity of the CPS is provided by scales for 40 specific facets of personality referred to as "factor homogenous item dimensions" (FHIDs). The 40 FHIDs are classified into 8 (not 5) higher-order domains in the standard CPS scoring.

The performance criterion for the present analyses was the person's rate at the end of his first-term enlistment. As noted previously in the discussion of Santens and Walker's (1983) study of early promotion in Air Force officers, this criterion is not likely to be a pure indicator

of differences in leadership. In fact, leadership potential may be a minor influence on advancement for early promotions. These promotions probably depend more heavily on technical ability and task proficiency than on leadership as such. However, leadership potential indicators (e.g., annual evaluations) should figure to some extent in the determination of advancement. This point is given further attention after considering the results of the analyses.

Any use of advancement as a criterion requires that all of the people examined have the same general opportunities for advancement. Analyses were restricted to males who entered the Navy between September 1972 and December 1973, then went to Corpsman School following graduation from basic training. Individuals who enlisted for tours of less than or more than 4 years were excluded as were individuals who entered the service with a rank of E-2 or higher due to special programs. This sample definition restricted analyses as much as possible to people who entered the service on equal footing and served under the same general geopolitical conditions and organizational policies.

Differences in advancement occurred within the sample. The observed distribution of rates at the end of the first-term enlistment in this sample was 41.3% E-3 or less, 48.3% E-4, and 10.4% E-5/6. This distribution was dichotomized into groups with ratings of E-4 or less and E-5/6 for analysis to provide a "rapid advancement" criterion.

Rapid advancement was associated with a number of personality attributes (Table 5). The FFM location of each scale shown in the table is a judgment by the author based on review of the CPS item content and Noller, et al. (1987) proposed alignments of the eight higher-order CPS dimensions in the FFM space.

These results support the claim that personality should be measured at the facet level to predict leadership-related criteria. Nine of the 40 FHIDs differed significantly ($p < .05$) between groups. The probability of obtaining this many significant differences by chance alone is only $p = .0013$. In contrast, only 1 of 8 higher-order dimensions differed. This frequency of significant findings is well within the range expected by chance ($p = .334$).

The results again underscore both the importance of the agreeableness domain and the complexity of its relationship to leadership. The scales for Human Worth and Honesty reflect a believe in the positive value and trustworthiness of other people. The scales for Generous and Not Selfish reflect the individual's willingness to give to others as a matter of principle. These results

Table 5

Personality Attributes of Corpsmen with Faster than Average First-term Advancement

FHIDs Scale	t-value	Sig.	r_{pb}	r_{pb}	FFM
Human Worth	1.76	.040	.10	.15	A
Honesty	1.82	.035	.09	.14	A
Generous	-2.49	.007	-.14	-.20	A
Not Selfish	-1.71	.044	-.08	-.14	A
Personal Conformity	2.43	.008	.12	.18	C
Effort	1.73	.042	.13	.12	C
Optimism	1.67	.048	.15	.23	N
Not Squeamish	.97	.025	.11	.16	N
Sociability	-1.74[a]	.044	-.07	-.09	E

Note. Value of the t-test and statistical significance based on comparison of group means. "r_{pb}" indicates a point biserial correlation and "Adjusted r_{pb}" indicates the estimated correlation if FHID scales were lengthened to have an alpha coefficient reliability of .900. 'FFM" indicates location relative to the five-factor model of personality. See text for details.

[a]t-test computed with separate variance estimates for the two groups because statistical tests indicated that the group variances differed significantly ($p < .10$).

suggest that trust in others is important for leadership, but that other elements of agreeableness are negatively related to leadership. The same characterization was reached above in the review of other research.

The results of this study also provide some further evidence that the motivational aspects of conscientiousness are important. The Effort scale can be interpreted as an index of willingness to persist and strive for success under difficult circumstances.

The evidence also suggests that only some conscientiousness facets are relevant to leadership. Higher Effort was related to faster advancement, but none of the five FHIDs, which define a higher-order domain of Orderliness, in the CPS were related to advancement. The content of the effort scale is consistent with and achievement motivation or persistence interpretation of this FHID while Personal Conformity can be interpreted as indicating a willingness to pursue high standards. Thus, this part of the findings extends the trend for achievement-oriented elements of conscientiousness to be important relative to the orderly, methodical components.

The extraversion findings also were informative. Sociability was negatively related to advancement. The general trend in prior research has been for extraversion to be positively related to leadership. However, the previous consideration of the Gough, et al.

(1978) and Blake, et al. (1993) findings suggested that the relationship depended on the assertiveness elements of extraversion. Exhibitionist elements of extraversion were negatively related to leadership in the Gough et al. (1978) study, and it was suggested that sociability elements were unimportant given their absence as a correlate of leadership predictors identified in the Blake, et al. (1993) study. The present evidence confirms that point.

The findings for neuroticism facets help extend the general picture that emotional stability is important for leadership. However, the specific FHIDs presumed to reflect emotional stability in this study do not appear to be close analogues of any specific attributes associated with leadership in the literature reviewed above. Thus, the results add to the evidence that emotional stability is important, but do not help identify specific components of this domain as critical for leadership. In fact, the FHID labelled "Not Squeamish" concerns sensitivity to blood, insects, and other such stimuli. It may be important in the present instance because of the specific population studied (i.e., corpsmen). However, even this result adds to the evidence that emotional stability is important for leadership.

The size of the correlation in Table 5 might evoke concerns that this discussion is much ado about nothing. Superficially, the correlations were small and might be dismissed as practically unimportant, despite being statistically significant. This appearance is partly a function of limited measurement precision of the FHIDs (median coefficient alpha = .61; range = .37 - .81). The adjusted correlations in Table 5 estimate what the observed correlations would be if FHID measurement precision were increased to .90. This figure is a reasonable target given that values between .85 and .95 are common in the literature on longer personality scales (e.g., Costa & McCrae, 1992; Schuerger, Sarrella, & Holtz, 1989). The adjusted FHID correlations were comparable in magnitude to the correlation between advancement and scores on the Armed Forces Qualifying Test (AFQT) in the same sample (r = .24). Given that mental ability is the best available predictor of general job performance (Hunter & Hunter, 1984), the adjusted personality correlations compare favorable to this gold standard criterion.

The relationship between advancement and intelligence merits additional comment. This relationship underscores the previous observation that advancement is a complex criterion. The criterion almost certainly includes technical skill. Established relationships between technical proficiency and mental ability (e.g., Hunter & Hunter, 1984; McHenry, et al., 1990) make it reasonable to infer a mental ability-technical proficiency-advancement sequence to

account for the observed relationships. However, if technical proficiency were the sole determinant of advancement, there would be little reason to expect personality to be related to advancement. Personality is only weakly related to technical proficiency measures (Barrick & Mount, 1991; McHenry, et al., 1990), so people selected for advancement solely on the basis of technical proficiency would not be expected to differ from the general population with respect to personality. Furthermore, if those selected for advancement did differ on some personality attributes by chance, there would be no reason to expect those chance differences to echo the themes noted when leadership criteria were examined. Thus, within the limits of the available evidence, these findings were consistent with the view that selected personality attributes are factors in leadership potential.

Implications

There are three primary implications of these illustrative Navy enlisted personnel findings. First, the pattern of personality correlates of advancement is consistent with major elements of research in other military populations. Second, the results strongly imply that personality must be analyzed at the level of specific personality facets, not general dimensions. Third, advancement is a composite variable. Leadership relevant behaviors probably are only a minor element of that composite. Clear identification of the personality underpinnings of leadership, therefore, will require appropriate leadership criterion measures.

Outline of a Leadership Personality Profile

The evidence reviewed above provides a basis for a tentative personality profile for leadership. While dominance has been a mainstay of leadership research, this focus may have restricted attention unnecessarily. Many models of personality treat dominance as an element of extraversion. A more complete profile involves at least three other general domains of personality. The general pattern of relevant attributes within each domain is shown in Table 6.

Note that some components of neuroticism (e.g., anxiety, impulse control) and conscientiousness (e.g., orderly, deliberate, methodical) are not represented in the table. These omissions reflect the fact that these attributes appear to be irrelevant to leadership. With this point in mind, the differential relevance of specific facets

Table 6

Personality and Leadership: Critical Elements in the Five-factor Model Domains

Domain	Central Components for Leadership
Neuroticism	Depression (-), Stress Vulnerability (-), Pessimism (-)
Conscientiousness	Competence (+), Effort (+), Achievement (+), Striving (+), Self-disciplined (+)
Agreeableness	Frank (+), Trusting (+), Kind (-), Generous (-)
Extraversion	Assertiveness (+), Aggressive (+), Sociable (-), Show-off (-)

within domains which is clearly evident for agreeableness and extraversion is a general rule that applies to all four domains. This rule also may apply to openness to experience, but there is too little evidence to make a meaningful decision on this topic at present.

An interpretive thumbnail sketch of a leader drawn from the data underlying the preceding summary might be as follows. Leaders set high standards for themselves and routinely strive to meet those standards through disciplined effort. While they may be dutiful, orderly, and deliberate, these are not the key elements of conscientiousness. Leaders have a positive attitude, maintain a sense of optimism, and perceive themselves as continuing to perform well under stress. Leaders are assertive, self-confident in social interactions, and perceive themselves as able to influence others. Leaders may even be aggressive in interactions with other people. The purely social interaction components of extraversion do not appear relevant to leadership. Leaders are honest and candid with other people and unlikely to be swayed by the needs of particular subordinates (i.e., not kind-hearted) or to be especially punitive (i.e., not hard-hearted). Basic trust of human worth may be balanced by skepticism in some cases, but overall the individual should have a belief in the people he is to lead. The combination of honesty and basic trust with reasoned punishment and conditional support seems likely to foster a sense of equitable treatment in subordinates. Being assertive may be one expression of honesty and candor in leaders. The emphasis on honesty as an important component makes the profile less likely to be a form of Machiavellian striving for success at all costs, although this alternative cannot be completely ruled out.

This leadership personality profile may differ from everyday views of leadership in some important ways. The typical view of a leader may be summarized by the idea of a "dominant" behavior pattern.

The implication is that the leader is assertive and aggressive and, presumably, successful in influencing others. The current profile suggests that dominant behaviors may be only some of the most readily observable attributes of leaders. Focusing on just these attributes could be an oversimplification. Effective leadership appears to involve a much more complex pattern of behaviors, sometimes involving a careful balancing of attributes such as those related to kindness and hard-heartedness. Failure to appreciate this complexity may be one limiting factor in attempts to understand effective leaders.

Leadership Compared to General Job Performance

Trends in the above cited military leadership-personality studies reviewed suggest that a selection profile could be established. The overall empirical base for such assertions is limited by the small number of available studies and by inconsistent coverage of the personality domains. A summary of relevant trends in the job performance literature, therefore, is provided here to help establish some of the foregoing suggestions as specific instances of general principles.

The general picture of the relationships between personality and performance is provided in Table 7. This summary is based on the work of Kamp and Hough (1988), but other recent reviews present a similar picture (Barrick & Mount, 1991; Tett, Jackson, Rothstein, & Reddon, 1994). The cumulative evidence leaves little room for doubt that personality is related to job performance, albeit modestly.

One general principle underscored by Table 7 is that the predictive power of personality variables depends on the criterion. Personality is a weak predictor of job proficiency (i.e., technical elements of job performance) but a relatively strong predictor of job adjustment, a category that includes absenteeism and related behaviors.

One issue to be resolved in personality-leadership area is how much, if at all, leadership depends on technical proficiency and how much it depends on other behaviors. The literature reviewed in this paper indicates that task or academic proficiency and more specific measures of leadership are only moderately correlated (Atwater, 1992; Blake, et al., 1993; McHenry, et al., 1990) and have distinct predictor profiles (Atwater, 1992; McHenry, et al., 1990). For example, Atwater's (1992) findings indicated that mental ability predicted academic performance, but not leadership ratings. Personality measures showed the opposite pattern of relationships.

Table 7

Summary of Personality-Performance Data (Data from Kamp & Hough, 1988)

			Criterion		
Predictor	Ed.	Train.	Job Prof.	Turn-over	Malad-just
Stability	.14	.19	.11	.17	-.33
Extraversion	.06	.13	.07	.04	-.17
Openness	.17	.19	.01	-.09	.18
Agreeableness	.03	.08	.03	-.02	-.03
Conscientious	.13	.12	.11	.14	-.43

Note. Table entries are average correlations from the meta-analysis of personality and performance conducted by Kamp and Hough (1988). Abbreviations for criteria are: Ed. = Educational, Train. = Training, Job Prof. = Job Proficiency, Turnover = Job Turnover/Commitment, and Maladjust. = Maladjustment.

The logical application of this specificity of relationships would be to employ a multivariate selection procedure. Mental ability measures would be the appropriate devices for screening for technical proficiency (Hunter & Hunter, 1984; Schmitt, et al., 1984). Personality measures would provide a complementary basis for screening for other job relevant behaviors.

The personality-performance literature also supports the position that specific facets of personality represent the appropriate level of analysis. Mershon and Gorsuch (1988) showed that adding specific facets to predictive equations, which already included indicators of the major personality domains, resulted in significant increments in predictive power across a wide range of jobs. Similarly, Kamp and Hough's (1988) review led them to identify achievement motivation as a particularly important facet of conscientiousness. This recommendation was incorporated into the Army's Project A personality profile (McHenry, et al., 1992).

General personality-performance trends, therefore, make it possible to see two major aspects of personality-leadership relationships as specific instances of general principles. First, effective prediction of leadership will require isolation of specific facets of personality relevant to this behavioral domain. Second, leadership should be isolated as a specific behavioral element rather than inferred indirectly from measures such as advancement.

Job Assignments and Leadership Development

Determining that personality measures can predict leadership performance meets a minimum criterion for establishing personality profiles for leadership selection. The application of personality measures to screen for leadership positions involves consideration of issues other than the simple question of whether personality can predict leadership potential. Some important issues are considered briefly below to provide a broader context for assessing the potential utility of personality screening.

Personality Change

One limitation of the available evidence is that the studies typically measured personality, then predicted criteria assessed concurrently or at most 2 or 3 years later. How well will this information apply to the problem of predicting outcomes over longer periods of time? The answer to this question depends on whether or not personality changes over time. The possibility of personality change is a leadership selection problem if people must enter the pipeline for leadership billets well in advance of the time they actually take on jobs involving leadership as a primary responsibility. Jobs that involve leadership as one of the primary requirements may not occur until the middle or end of a person's Navy career. If leadership potential is to be a selection criterion for these later jobs, it is important to answer the following question: Can personality measurements taken at the time of entry into the career pipeline predict leadership potential much later in the person's career?

Answers to these questions are provided by research on the stability of personality. Stability is quantified as a stability coefficient, the correlation between scores on a personality scale administered to the same sample of people at two different times. Reviews of the relevant research (Schuerger, Tait, & Tavernelli, 1982; Schuerger, Sarrella, & Hotz, 1989) indicate that stability is higher when:

1. Normal populations are studied rather than prisoner or patient populations.

2. Scales with high measurement precision are used.

3. The interval between measurements is short.

4. The population studied is older.

With these factors taken into account, gender and the specific personality construct measured have little effect on long-term stability.

The findings relating stability of personality characteristics to the interval between measurements are most germane to the questions raised above. How well can measures of personality taken at the beginning of a Navy career be expected to predict the personality at the middle of the career or later? Schuerger, et al. (1989) estimate the rate of change in stability correlations to be -.158 when the unit of measurement is the logarithm (base 10) of the interval (in months) between measurements and analyses are restricted to studies with at least 12 months between personality measurements. Applying this formula, a reasonable upper boundary for the stability coefficients of personality tests can be estimated by assuming an initial measurement precision (i.e., reliability) of .90 (where 1.00 would be error-free measurement). In this case, predicted stability coefficients would be $r = .63$ over 10 years, $r = .51$ over 15 years, and $r = .49$ over 20 years. A lower bound can be estimated by assuming an initial reliability of .80. In this case, the corresponding predictions would be $r = .43$ at 10 years, $r = .41$ at 15 years, and $r = .39$ at 20 years. Evidence presented by Schuerger, et al. (1989) places the typical reliability of personality tests at .85, so typical stability coefficients would be about half way between these best and worst cases if standard personality inventories were used. Thus, 15 year stabilities, for example, would be approximately $r = 46$. Smith (1992) used different methods to develop an equation for predicting stability coefficients, but it, too, yields an estimate of $r = .46$ for a 15-year interval.

What are the implications of these findings for predicting leadership potential? First, suppose an above average score on a personality test were to be used as a selection criterion. Fifteen years later, changes in personality will have occurred, but the 15-year stability of $r = .46$ implies that 73% of the people selected would meet the criterion 15 years later (Rosenthal & Rubin, 1979). Thus, personality-based selection procedures would increase the pool of above average candidates 23% relative to what would be expected with random assignment.

Determinants of Personality Development

The stability coefficients referred to above really present two opportunities for enhancing leadership selection programs. Moderate stability makes personality screening useful even over moderately long periods of time. At the same time, the fact that these

coefficients are less than 1.00 implies that change is taking place. If the determinants of change could be identified, that information could be applied to promote leadership development. Such efforts would complement the more passive approach of relying solely on leadership selection. In particular, if the causal factors underlying personality changes include exposure to specific experiences in the Navy, initial leadership potential could be enhanced by structuring Navy experiences to provide optimal growth opportunities for promising young men and women.

One way to make a case for experience as the determinant of personality change in young adults is to rule out other plausible explanations. One plausible alternative arises from the fact that personality variables are influenced by genetic factors (Plomin, Chipuer, & Loehlin, 1990). While genetic influences sometimes are mistakenly equated with stability, genes influence patterns of growth. For this reason, changes in young adults might represent genetically-based development. If so, opportunities for modifying growth curves would be constrained and might be so limited that such efforts would not be cost effective.

Available evidence uniformly contradicts a genetic basis for personality change in late adolescence and early adulthood. Changes in personality during this period are not consistent with what would be expected if genetics were a major determinant of these changes (Loehlin, Horn, & Willerman, 1990; McGue, Bacon, & Lykken, 1993; Plomin & Nesselroade, 1990). These negative findings are not likely to be the result of low reliability of change scores. Given the evidence that personality is moderately stable over periods of even a few years (see above), changes can be assessed with acceptable precision (Rogosa, 1988). Thus, the best summary of the evidence appears to be that ". . . the stable core of personality is strongly associated with genetic factors but that personality changes largely reflects environmental factors" (McGue, et al., 1993, p. 96).

Job experiences may be one environmental factor that contributes to personality change. Data on this point is even scantier than that pertaining to genetic influences, but at least one study has shown that job attributes can influence personality development (Kohn & Schooler, 1973).

Navy experiences can influence personality. Some military experiences appear to increase scores on the personality attributes characteristic of individuals with leadership potential. For example, undergoing basic training is associated with increased emotional stability (Ekman, Friesen, & Lutzker, 1962; Vickers, Hervig,

Walton, Ackerman, Kanfer, & Squire, unpublished data) and conscientiousness (Vickers, et al., unpublished data). These changes would increase leadership potential.

Other Navy experiences may have less salutary effects. Studies of trainees entering Corpsman School (Norton & Booth, 1976) and Basic Underwater Demolition /SEAL (BUD/S) training (McDonald, Norton, & Hodgdon, 1990) have shown shifts in score distributions, which would reduce the leadership potential. For example, when personality was measured with the CPS at entry into Corpsman School and after graduation, entry scores were higher on nearly all scales. The lower post-training scores on Trust, Emotional Stability, and Extraversion all are suggestive of movement away from the desired leadership profile. The analyses did not include FHID scores, so it is impossible to say how much the observed effects actually involved the critical FHIDs for leadership.

Both the positive and negative findings just cited must be interpreted cautiously. The studies were not designed to identify specific experiences affecting personality. Thus, it is not possible to say what elements of the programs produced the apparent changes. Indeed, the apparent changes may be no more than reactions to specific situations. The stresses experienced early in basic training may elevate recruits' reporting of neurotic tendencies, for example. The diminution of stress over the course of training then may produce the appearance of personality trait improvements, which are nothing more than recovery from a transient situational reaction. the BUD/S and Corpsman School samples may have biased their initial personality descriptions in a positive direction to promote a positive image with the organization. After surviving the selection processes, this self-promotion no longer is required and a more accurate, less flattering profile is reported. Thus, the findings at best indicate the potential for Navy experiences to modify personality.

Although little is known about job influences on personality development, there is evidence that substantial personality growth occurs between high school and the early thirties (e.g., Costa & McCrae, 1992). Normative trends indicate change in the direction that would improve leadership abilities. The average size of the changes is nontrivial and presumably depends on commonplace experiences given that genetic bases are ruled out. These commonplace experiences logically include work experiences. Until specific causal factors can be identified, there is no way to make use of this naturally occurring change as an opportunity for leadership development.

Personality and Mental Ability

General mental ability is the best single predictor of job performance across a wide range of jobs (Hunter & Hunter, 1984). Mental ability therefore is likely to be included in any reasonable selection protocol. This raises the question of how personality-based selection would operate in combination with selection based on mental ability.

If mental ability were highly correlated with personality, selection based on mental ability would select people with particular personality traits. Personality-based selection then would be redundant given prior or concurrent screening for mental ability.

Personality and mental ability are not redundant. Among Navy recruits, the four major dimensions of personality relevant to leadership correlate less than $r = .20$ with Armed Services Vocational Aptitude Battery (ASVAB) scales (Vickers, 1992) in a large sample of U.S. Navy recruits. Similar low correlations were obtained in the Army's Project A study (McHenry, et al., 1990). In the Hospital Corpsman School sample described above (cf., pp. 17-22), AFQT score produced correlations less than $r = .18$ for the leadership relevant scales (Vickers, Hervig, & Booth, in preparation). Thus, selection based on mental ability may ensure better technical performance, but does not guarantee better leadership. As noted previously in the discussion of the Corps School study findings, these results were consistent with observations in other studies (e.g., McHenry, et al., 1990).

An example can illustrate the implications of the independence of personality and mental ability for selection programs. Consider two candidates for a training position. One has a slightly higher mental ability than the other. Based on this information, the first candidate would be expected to have a slightly higher probability of success than the second candidate. However, suppose additional information was available about the personality profiles of the two candidates. This information indicates that the first candidate lacks motivation and stress resistance, while the second candidate possesses these attributes in abundance. The personality differences could be enough to offset the small differences in ability in which case the second candidate would have a higher probability of training success despite his or her lower mental ability. Even if this were not the case, the second candidate might have better long-term career potential because he or she possessed leadership attributes that would become increasingly important over the course of his/her career.

This hypothetical example illustrates that the rank ordering of candidates for a training program could be modified if personality variables were considered in addition to mental ability. The stipulation that the two individuals are close with respect to mental ability is an important element of the example, because mental ability is a stronger predictor of training success and technical proficiency than is personality. As a result, large personality differences between candidates are needed to offset minor differences in mental ability. Personality differences probably cannot produce reversals in probability of success when mental ability differences are large. However, the key to reducing attrition from training programs may be making the correct call in marginal cases (i.e., those individuals who are near the cutoff for program admission). Because more people are near the middle of the overall ability distribution than are at the high end of the distribution, the number of candidates near the cutoff point for admission can be a substantial minority of the total candidate pool. It is precisely in this critical region for selection that personality can play a useful role.

Possible Adverse Effect

Screening devices have adverse impact if they selectively exclude people from specific demographic groups. Minority group membership is a common concern when discussing adverse effects, but personality criteria actually may favor the minority groups who might be adversely affected by other selection criteria.

As an example, consider data on FFM measures from the NEO Five-Factor Inventory (Costa & McCrae, 1992). This inventory was completed by 4,066 incoming male U.S. Navy recruits (Vickers, unpublished data) between 1986 and 1990. When recruits were classified into groups based on their reported race/euthenist, significant group differences were observed for the dimensions of Neuroticism ($F = 19.99, p < .001$), Openness ($F = 12.76, p < .001$), Conscientiousness ($F = 24.29, p < ..001$), and Agreeableness ($F = 2.54, p < .027$). Effect sizes (ES) for group differences were computed as

$$ES = \frac{\text{(Minority average - White average)}}{\text{White standard deviation}}$$

ESs for the primary minority groups, Blacks, and Hispanics were:

	Blacks	Hispanics
Neurotic	-.40	-.20
Openness	-.33	-.12
Conscientious	.37	.26
Agreeable	.04	.06

Thus, Blacks and Hispanics scored lower than Whites on neuroticism and higher than Whites on conscientiousness. Evidence cited above for leadership and meta-analyses of the general personality-performance (Kamp & Hough, 1988; Barrick & Mount, 1990), therefore, suggest that personality-based selection would tend to favor these minority groups whether the selection objective was to maximize leadership potential or general job performance. It should be noted, however, that the group differences need to be confirmed with additional data. Evidence from other sources such as studies of the MMPI (Timbrook & Graham, 1994) suggest that the results might not replicate. However, a meaningful conclusion may require that specific personality attributes be identified as potential candidates for a screening program, then compared. The leadership literature reviewed above is ample reason to be skeptical about sweeping generalizations based on general FFM domains as the level of analysis.

The possibility of adverse effects of selection on women is another important problem. Men and women differ in a number of personality attributes (Feingold, 1994), several of which are related to leadership potential in the present analysis. For example, women are, on the average, more nurturing. When taken to extremes, this tendency might impair the agreeableness balance necessary for leaders. It would be necessary to confirm that this difference was present and related to performance in Navy personnel before regarding this possibility as a reason to abandon personality-based leadership selection. One possibility is that important behaviors such as nurturance are under discriminative control by the individual so that the person who is an extremely nurturing individual in his/her personal life is less so on the job.

Response Bias

Response bias occurs when people selectively distort their self-descriptions when completing personality inventories. Distortion may be especially likely when personnel selection is the reason for completing the questionnaire. In this situation, people may try to

present themselves in a positive light because the potential benefits of getting a "good" score are highly attractive.

The potential for bias is a concern because it is a commonplace finding that people can fake personality inventories when instructed to put forth the best possible image. However, the fact that personality inventories can be faked is not the same as evidence that they are faked in actual situations. Many personality inventories have been constructed with scales to detect various strategies for faking. These scales then are used to adjust scores on other personality measures or to simply delete people whose response pattern makes it likely that they faked the test. The application of these strategies to correct for faking typically has little effect on the usefulness of the personality scores as predictors of criteria, including job performance (e.g., Hough, Eaton, Dunnette, Kamp, & McCloy, 1990).

The personality profile for leadership offers some protection against response bias effects. A simple strategy of describing one's self in positive terms will not ensure a high leadership potential score. For example, if responses to all the items pertaining to agreeableness were biased in a positive direction, this bias would increase scores on some leadership potential predictors at the same time that it decreased scores on others.

Biodata and Leadership Personality

Biodata is an alternative to personality measurement for leadership screening. Typically biodata items ask about specific aspects of past experience that might be relevant to a particular criterion. For example, biodata questions pertaining to leadership potential might deal with whether the person has held leadership positions in school or community activities in the past.

The biodata approach to assessing leadership potential could be defended in two ways. First, it could be argued that people in the past have had adequate opportunities to make subjective judgments of a person's abilities and select those with high leadership potential. Note, however, that the opportunity to lead may vary for people from different backgrounds because of differences in the number of leadership positions and the number of people competing for those positions (e.g., in a large school versus a small school). The second justification would be the general dictum that "Past behavior is the best predictor of future behavior."

Both of these justifications assume that past opportunities have been equally distributed and that peers and supervisors are good at identifying true leadership potential. These assumptions may be valid or they may not. It is conceivable that many potential leaders are not given opportunities to do so because of errors in these informal assessment processes. If so, additional methods of identifying potential are needed.

Biodata may be complementary to personality measurement. Biodata can indicate past opportunities to develop potential. The intelligent person will not be well-informed without schooling. The potential leader will not develop the ability to make constructive use of his or her potential without the opportunity to practice leadership. Thus, biodata may indicate who will be the more developed among the leaders while personality predicts the potential for further development.

Evaluation of Personality Measurement Inventories

The last question posed in the introduction to this report was "What available personality measures are most suitable for assessing leadership potential?" All of the foregoing discussion is essentially background for answering that question.

None of the standardized personality inventories used in prior research is entirely satisfactory. The ACL (Gough & Heilbrun, 1965) lacks indicators of openness to experience. the CPI (Gough, 1987) lacks coverage of agreeableness. The 16-PF (Cattell, Eber, & Tatsuoka, 1970) provides limited coverage of the conscientiousness domain. The CPS (Comrey, 1970) also appears to be limited in the conscientiousness domain and provides scales with limited measurement precision.

Listing the limitations of instruments, which have been used in research to date, makes it clear that there is no single study that has paired a good measure of leadership with a personality inventory that covers all the critical personality facets. Fortunately, a number of standardized instruments exist that could be used to correct deficiencies of the personality measurement side of the equation.

Two major themes define important criteria for selecting or developing a questionnaire for leadership selection. First, at least four of the five general FFM domains must be covered. The fifth, openness, may be important as well, but there is too little evidence on this dimension to suggest that this domain must be covered. Second, leadership is related to specific facets within domains. The criteria derived from these themes are: (1) all five FFM domains

should be covered and (2) the specific personality facets believed to be relevant within each domain should be assessed.

The criterion rules out a few commonly used questionnaires. The Eysenck Personality Questionnaire (Eysenck & Eysenck, 1983) does not separate the agreeableness and conscientiousness domains. The Minnesota Multiphasic Personality Inventory (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) emphasizes constructs, which would be assigned to the FFM neuroticism domain.

The second criterion could be applied to choose between other standardized questionnaires, which meet the initial criterion. However, only an incredible stroke of luck would produce a questionnaire with exactly the set of facets required for the present purposes. However, the NEO Personality Inventory-Revised (NEO-PI) (Costa & McCrae, 1992) comes reasonably close to the objective. Based on the leadership profile presented on pp. 20-21 above, the NEO-PIR has a number of positive characteristics for the present purposes. Those characteristics include:

1. The instrument includes scales suitable for making necessary distinctions within FFM domains. These distinctions include the differences between assertiveness and sociability in the extraversion domain, between achievement motivation and orderliness in the conscientiousness domain, and between trust and kindness (tendermindedness) in the agreeableness domain. The only notable attribute missing from the list of facets is optimism, but an approximation to optimism is provided by combining neuroticism and extraversion facets (Marshall, Wortman, Kusula, Hervig, & Vickers, 1992).

2. The inventory has been the object of extensive validation studies (cf., Costa & McCrae, 1992). The validation studies include examination of associations to several competing inventories for leadership selection. The validity information could be useful in deciding whether other instruments have the potential to augment an initial profile.

3. Evidence is available to link NEO-PIR scales to the leadership literature reviewed above. The relationships between the NEO-PIR and the scales used in prior leadership work have been investigated as part of the validation studies referred to in number 2 above.

4. The NEO-PIR has growing professional acceptance as a standardized measure of the FFM (Ozer & Reise, 1993). Indeed, the NEO-PIR may be regarded by many as "the" standardized inventory relative to this personality assessment model.

5. The NEO-PIR provides coverage of the neglected openness domain. Weak evidence noted above suggests that the tolerance components of openness might be part of the overall leadership picture. However, the general lack of openness measures in prior research makes this possibility difficult to evaluate. Given increasing pressures to diversify the sociodemographic make-up of military work places, such tolerance may be even more important in the future than it is today. If any research is conducted in conjunction with leadership selection, it will be highly desirable that openness be measured with some precision.

6. The NEO-PIR has a history of acceptability and utility in the military. Acceptability to individuals has been inferred from the types of questions asked of the author and his colleagues in administering earlier versions of this questionnaire to over 5,000 Navy recruits. Utility has been established by the application of NEO measures in screening programs (e.g., current Navy recruit screening).

7. Data bases are available to study NEO variables as predictors of mid-career Navy success. Prior research provides profiles for the NEO Personality Inventory (Costa & McCrae, 1985) for large samples of recruits who entered the Navy 6 to 8 years ago. These data could be useful in establishing baseline career trends for different personality types as a reference point for evaluating the effects of selection programs. These data also would be useful for directly establishing the predictive value of personality for mid-career leadership ratings given a suitable leadership criterion.

Other competitive questionnaires have specific limitations compared to this list of attributes. The MPQ (Tellegen & Waller, in press) does not have an obvious measure of trust, and some of its facet scales have as few as two items. Short scales generally are less reliable than longer scales (Lord & Novick, 1968). Thus, incomplete coverage of some important aspects of personality and low measurement precision would be expected if the MPQ were applied to the present purposes.

The CPS (Comrey, 1970) assesses most of the critical components of the leadership profile and has produced valuable findings in military populations. The major limitation of that questionnaire for the present purposes appears to be the limited coverage of lack of the achievement motivation component of conscientiousness. Also, the typical reliability of the CPS facets observed in our studies (median = .61) is even lower than that given for the NEO-PIR facets (median = .73).

Other competing inventories may avoid some of the domain coverage and reliability problems. However, there do not appear to be any that possess all of the attributes listed above for the NEO-PIR.

Based on these considerations, the NEO-PIR is a suitable instrument for leadership selection. A prototype selection profile for this instrument is shown in Figure 1. In this profile, a score of 50 represents an average individual. This score is represented by the line of dots running from top to bottom down the middle of the profile box. If a good leader should be below average on a particular facet, the bar for that facet extends to the left of the midline (i.e., indicates a score less than 50). If a good leader should be above average on a facet, the bar extends to the right of the midline (i.e., indicates a score greater than 50). Facets that are believed to be irrelevant to leadership were assigned a value of 50 and appear as solid segments on the midline.

The prototype leadership selection profile does not show positive and negative attributes as extreme deviations from the score of the average sailor. For example, the profile might have shown a score of 70 or greater on assertiveness, competence, achievement striving, or other positive attributes.

The decision to describe the prototype leadership potential profile as involving only moderate deviations from average was based on two considerations. First, it is hard to find individuals who simultaneously have truly extreme scores on several independent dimensions of personality. Some personality attributes are important for leadership and should be elevated in good leadership candidates. These attributes have been fixed at values one standard deviation above the population mean (i.e., 10 points different than the mean of 50) in the figure. The mean score could be higher, but only about 1 in 6 sailors will pass the current criterion.

Even a lenient criterion becomes stringent when applied to several independent indicators of leadership potential. If the probability of satisfying a single criterion is 1 in 6, then the probability of satisfying both of two independent criteria is 1 in 36 (i.e., 1/6 * 1/6). The leadership profile includes indicators from 4 of 5 FFM domains. If only a single indicator were chosen to represent each domain and if status in each domain were independent of status in each other domain, the probability of a given sailor meeting all the selection criterion for all four indicators would be only 1 in 1,296 (i.e., 1/6 * 1/6 * 1/6 * 1/6). If the initial criterion were set higher (e.g., top 10%), the number of people meeting the criterion on all four indicators would be even smaller.

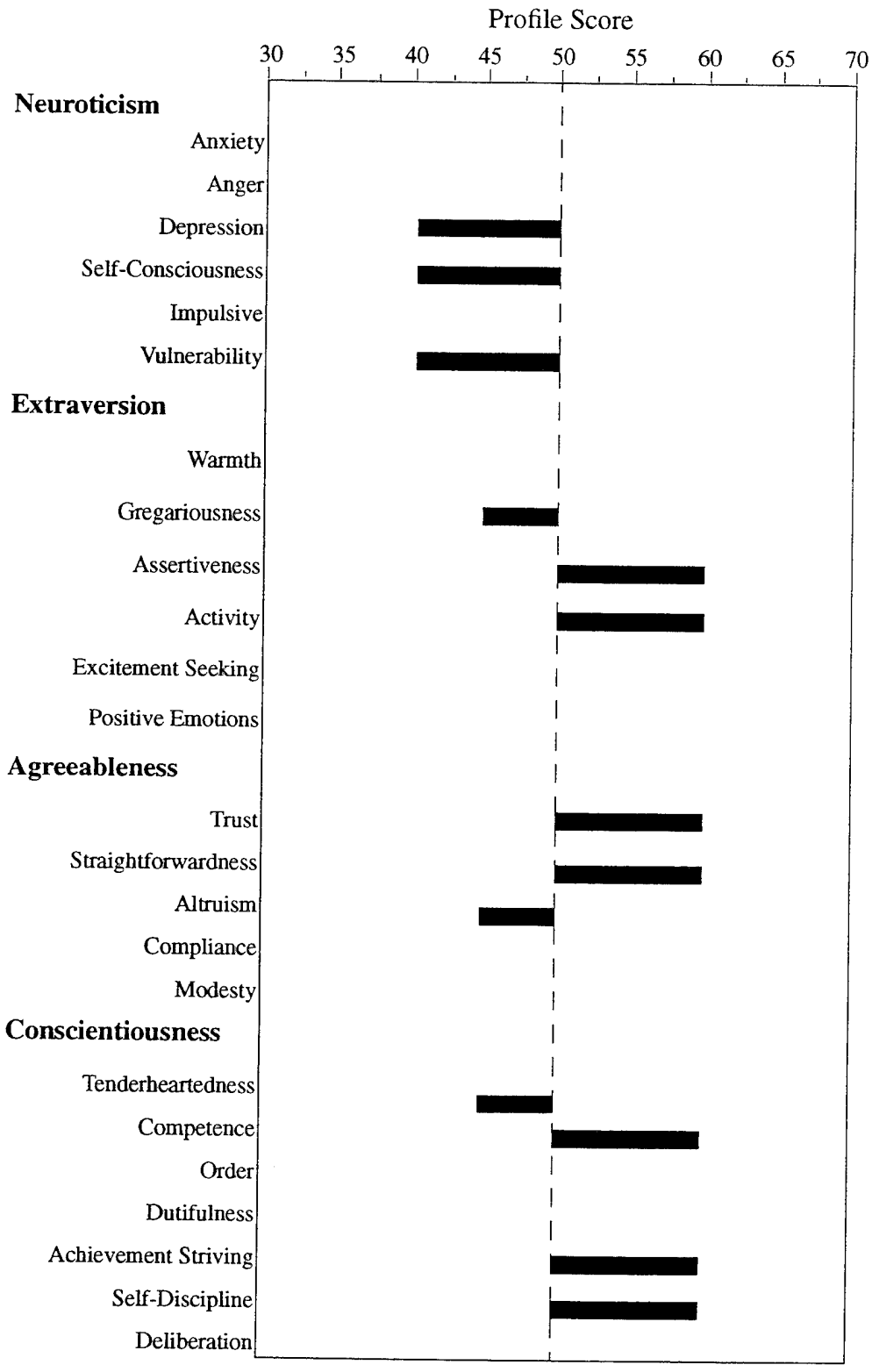

Figure 1. Prototype leader personality profile.

The second consideration was that attributes within a given domain generally are positively correlated. This statement is true even though attributes are largely uncorrelated across domains. The presence of correlations within domains implies that a person selected to have a high score on one facet within a domain will tend to have above average scores on other facets within that domain. Thus, there is only a small probability of finding someone with a moderately high score on one facet and extremely low scores on other facets in the same domain. More individuals will be found who have high scores on one facet and moderately low scores on other facets. The profile in Figure 1 reflects a decision to accentuate the positive by setting the deviation from average higher for positive indicators than for negative indicators. For this reason, negative indicators have been shown as only one-half standard deviation below the mean (i.e., a value of 45) if there is also a positive indicator in that domain. Facets that are irrelevant to selection based on the evidence in hand are shown as average scores (i.e., values of 50).

The openness domain has been omitted from Figure 1. This omission was made because there is too little evidence to have any confidence about statements regarding the importance of this domain for leadership. Speculations about the relevance of tolerance have been offered above, but these speculations have less hard evidence behind them than some of the other judgment calls. It would be highly desirable to have these gaps filled in to complete the profile.

The Figure 1 prototype profile is a summary of the available evidence regarding military leadership and personality translated into NEO-PIR scores. This summary clearly involves judgment calls about how certain findings in the literature should be interpreted in NEO-PIR terminology and how much weight to give to specific findings. Other judges might make different judgment calls. However, the summary provides a viable starting point for conducting selection research given what is known presently in the judgment of at least one informed observer.

Two critical points should be noted regarding the prototype selection profile. First, this profile is an approximation based on the evidence reviewed above. The specific values of facet scores defining the profile should not be interpreted too rigorously at this time. Indeed, this specific profile has not yet been validated as a predictor of Navy leadership or any other kind of leadership in any single study. **Validation of the profile must be a high priority for any application.** Second, the NEO-PIR facets comprising the

profile have only moderate measurement precision. More precise assessments might be made by adding items or adopting sets of scales from other sources that have satisfactory precision. The author is unaware of any personality inventory that provides better measurement of the critical constructs. **Construction of an improved measurement inventory should be considered.**

Although there is evidence that a profile such as that in Figure 1 could be useful in selecting leadership candidates, that profile should not be treated as a closed book. To reiterate points made previously, no study has combined the investigation of personality at the facet level of assessment with a well-developed leadership criterion. The profile is regarded as a prototype for exactly this reason. The prototype profile no doubt can be refined by studies designed to eliminate these limitations.

Summary

The evidence relating personality to military leadership is limited in quantity, but consistent in content. Personality variables have predicted leadership in prior studies and, therefore, may be useful for leadership selection. A selection profile must focus on specific aspects of personality, which are widely spread across the personality spectrum. The NEO-PIR (Costa & McCrae, 1992) is a suitable instrument for this purpose. A prototype selection profile based on recurrent themes in the available literature was sketched.

The empirical basis for the foregoing conclusion and recommendation is imperfect. No single study combined a sound leadership criterion with complete coverage of relevant personality attributes. The leadership criterion problem with past research might be solved by integrating and adapting available leadership rating or ranking procedures. The Military Aptitude Rating Scale used by Gough, et al. (1984) is a logical starting point for this undertaking. That measure stands out in the context of prior research as the sole leadership indicator for which construct validity evidence was cited (i.e., correlations between the scale ratings and other measures, including standard officer ratings, combat performance, and promotions).

The coverage problem with past research was most clearly evident in the fact that no study provided completely satisfactory coverage of specific attributes within the domains. However, the consistency of themes across studies made a strong case for the position that personality measures can contribute effectively to the prediction of leadership ability. Perhaps the key observation at this time is that no study has combined a leadership personality profile that assesses all the critical personality facets with a well-defined leadership criterion. Ideally, research designed to validate the prototype profile would be undertaken prior to implementing selection programs based on this information.

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Appendix C

Experimental Biodata Instrument Development

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8 December 1994

Method

Sample

In July 1994, a random sample of 150 (75 white and 75 black) male U.S. Marine Corps (USMC) non-commissioned officers (E-6 to E-9) and an opportunistic sample of 100 (50 black and 50 white) male U.S. Navy (USN) chiefs (E-7 to E-9) were identified from the relevant master files for interviews. The lowest grade in each sub-sample was defined as the first one that would have been selected by a statutory board. It was assumed that the members of the statutory boards would place more emphasis on leadership during their selection decisions than the examination-driven process used to select E-4s and E-5s in the Marine Corps and E-4s, E-5s, and E-6s in the Navy. The designated samples consisted of matched pairs of black and white personnel from the same grade and equivalent military occupational specialties (MOS) or ratings. Commands were selected so that they were representative of their respective service and contained a predominance of non-technical MOSs or ratings; that is, those MOSs or ratings that do not contain one or more of the ASVAB, technical information subtests in their selection composites.

Interviews with 116 of the designated sample of 250 personnel were not done because those personnel were on operational duty or annual leave, had transferred, or were not available for other reasons or an interviewer was not available. In addition, 34 interviews were lost when a third interviewer was unable to complete his work. The usable interviews included 48 conducted with Marines from the First Force Service Support Group, the First Marine Division, and the Third Air Wing based at Camp Pendleton, CA. Fifty-two additional interviews were completed with chiefs on board the USS L Y SPEAR (AS 36), USS SAIPAN (LHA 2), and USS ENTERPRISE (CVN 65), all based in the Norfolk, VA area. The breakdown of the sample by race, service, grade, and MOS/rating type (technical vs. non-technical) is shown in Table 1. The number of interviews conducted was limited by the availability of, primarily, the designated personnel and, secondarily, an interviewer. The commands could replace an unavailable member of the designated sample with an equivalent command member when such were available, but command operational requirements took precedence over the research activities.

Table 1

Male Interview Sample by Rating Type

Race	Grade	USN Tech-nical	USN Non-Tech	USMC Tech-nical	USMC Non-Tech	Total
	E-6	---	---	2	10	12
Black	E-7	4	13	0	6	23
	E-8	2	5	0	2	9
	E-9	0	2	0	0	2
	Sub-total	**6**	**20**	**2**	**18**	**46**
	E-6	---	---	1	14	15
White	E-7	4	17	2	5	28
	E-8	1	1	1	3	6
	E-9	0	3	0	2	5
	Sub-total	**5**	**21**	**4**	**24**	**54**
Total		**11**	**41**	**6**	**42**	**100**

Measurement Technology

One hour, individual, anonymous interviews were conducted with each interviewee using a structured interview protocol (see Appendix CA) that had been developed by the interviewers. It would have been more efficient and provided additional time to acquire relevant detail if the interviews had concentrated on the relationships and activities associated with early developmental representations of leadership behaviors. However, as directed, the interviews covered all facets of each leader's life during his teen-age years, prior to enlisting in the service. The topics (see Appendix CA) included descriptive information, relationships, and activities associated with school (junior and senior high school), social and community life, work, family, and personal life style. In addition, current demographics were acquired to ensure that the sample was representative of the characteristics used in its identification.

The interviews were conducted by two skilled interviewers representing different academic disciplines and races. Each interviewer met with respondents representing both races as assigned by a command representative. During the first series of 10

interviews, the interviewers met frequently to compare responses and establish whether respondent participation was influenced by any lack of congruity between the race of the interviewer and interviewee. No differential response bias or affective respondent reaction could be discerned. Each interview started out with the interviewer providing a complete description of the purpose of the interview and its contents. The potential respondent was then asked if he chose to participate. None chose to leave, but one respondent stated that he would decide whether to answer each specific question as it arose. However, he declined to respond to only one question. One interviewer taped the interviews and the other took extensive notes.

Item Generation

The data for interviewees with common racial, service, and MOS/ rating type were summarized independently on a special form (see Appendix CB) by each interviewer. A qualitative assessment indicated that the two interviewers were obtaining very similar responses to the protocol questions. When an independent third party summarized data from the one interviewers notes, that compilation was nearly identical to the compilation made by the interviewer. It appears that both the interview and the interview summarizing process produced acceptably consistent (reliable) results. Because of the exploratory nature of the data collection, no statistical analyses were attempted.

The first drafts of the biodata items were done independently by each interviewer and a third party. The ensuing sets of items were merged and refined using the optimum information from all three sources. While the normal criteria for generating items were generally followed, there was no attempt to introduce parsimony by limiting the number of available response options. Since interviews with current teenagers—or even recruits—were not conducted during phase I, the items may not adequately represent the current life style and/or language of new recruits. As a field test is conducted, we can modify and aggregate the options into classes using the terminology of todays new recruits. Limiting the number of available responses for an item now would make it difficult to respond appropriately to future field test comments. That step will be completed after feedback about the relevance and wordage of the items has been obtained from recruits during the first step in Phase II.

Appendix CA

Leadership Interview Categories and Items Assessment of Potential for Leadership

Robert F. Morrison
8 December 1994

Leadership Interview Categories and Items Assessment of Potential for Leadership

The interviews are designed to take about one hour. The interviewees will be E-7s--E-9s in the Navy and E-6s--E-9s in the USMC. They will have entered the Service 10 to 25 years earlier.

I. Statement of confidentiality

II. Purpose of the interview

III. Descriptive Information

A. Find out the interviewees service, race, rating (MOS), rank, and length of service.

B. Find out how far the interviewee went in school--use 12 years as an indication of high school completion. If they did not complete high school but obtained a GED, record the number of years in school and put GED after it in parentheses.

C. Have the interviewee estimate their high school class standing if they graduated from high school or provide their typical grades regardless.

Early Life Experiences That Aid the Learning of Leadership

IV. School environment

A. About how many students were there in your last high school? How far away from that high school did you live?

B. In what activities did you participate when you were in school? (Cover sports separately from other activities?) Provide examples, such as clubs, band, etc., if needed to start them thinking. (The Marines had a harder time recalling this item than most of the others.) What roles did you play in each activity? Were you ever captain of a sports or other team? If so, were you appointed or

elected? Were you ever elected to a class, club or other office? Were you ever in charge of a school activity or function?

C. Describe the relationships that you had with your teachers? What was it like dealing with those in authority? How much influence did you feel like you had over them and what you were doing? Was there any teacher or member of the staff that you admired? Who was it and why?

D. How active were you in class discussions? How often did you volunteer opinions?

E. Was your high school program primarily vocational/ technical or college preparatory? In what subject(s) did you do your best? What subject(s) did you like the most?

F. How often did your school mates come to you for help or advise? What were the topics that they brought to you?

G. What was your most outstanding, positive achievement in school?

V. Peer Relations

A. How many close friends did you have as a teenager? How many acquaintances?

B. What did you and your friends spend your time doing? How did you and your friends decide what to do? What was your position in the group? When teams were chosen for games, what role did you play? How did you influence your friends to do what you wanted them to do?

VI. Community (Youth Groups, for example) and Church Activities

A. In what community activities (e.g., scouts, fraternal society, and youth club) did you participate? What role did you take in those activities? What responsibilities did you have in those function/activities?

B. How active were you in your church? Would you consider yourself strongly religious? In what church activities did you participate? What role did you take in those activities? What responsibilities did you have in those function/activities?

VII. Work Experiences

A. How many different jobs did you have as a teenager? What was the largest number that you had at one time? How many years did you work prior to leaving high school? What kinds of work were you involved in prior to leaving high school? How many hours a week did you work? What roles did you play? What kinds of responsibility were you given? If you had others working for you, describe what it was like and what you did? (Separately cover any work that was done between leaving high school and enlisting.)

B. How often were you able to persuade your boss to do something that you wanted done? What did you learn from your boss(es)?

C. Why did you work prior to leaving high school? --prior to enlisting?

VIII. Family (Refer to father or mother surrogates or "admired" others when appropriate.)

A. What was the size of your family at the time you left high school? Were your parents divorced? What was the composition of the family in which you were raised as a teenager? --number of older and younger brothers? --number of older and younger sisters? --a mother, a father, a step-parent, a grandmother, a cousin, etc.

B. How did you relate to your father and mother? --to your brothers and sisters? How frequently could you persuade your parents—your brothers and sisters—to do what you wanted or wanted them to do?

C. How did members of your family respond when you needed help learning something? Did you ever help your brothers or sisters with their homework?

D. How did your mother and father reward you for your accomplishments?

E. How did your mother and father discipline you for things that you did wrong?

F. Tell me about the social activities in which your father or mother were involved? How many social clubs/organizations did your mother/father belong to? How common was it for your family to participate in activities with other families? How many of your

relatives lived in the area? Did your family participate in social activities with them?

G. Try to estimate the type of climate that was present in the family. For example, was there strict discipline and autocratic, strict discipline but benevolent, laissez faire (left on their own), high involvement with lots of two-way communication, supportive, or ??

H. In what occupations were your mother and father employed? How many jobs did your father or mother have? Were your mother or father supervisors of any kind? What was the largest number of people that your mother or father supervised? What did your father or mother discuss about the people who worked for them?

I. Were you raised primarily in a rural, small town, small city, medium city, or large city?

Personal Characteristics

IX. Self-efficacy

A. Before you enlisted, what would have been your response if you had been told that you were going to be placed in charge of a work team? --in charge of several work teams?

X. Self-control

A. Describe an instance in which you were really scared. How did you act? How did you feel?

B. Describe an instance in which you were really angry. How did you act? How did you feel?

XI. Consistency, reliability, perseverance

A. Were you known as someone who could be depended upon to do something you were told? --to complete whatever you started? What were some instances in which you were sought out and given responsibility because you had the reputation for getting things done?

XII. Assertiveness

A. Describe an instance or some instances in which you sought the opportunity to initiate something that you wanted to do. What happened?

XIII. Interpersonal skills

A. What did you prefer, activities or projects that you could do yourself or by yourself or activities that needed to be done with or around other people?

XIV. Risk Taking

A. Would you have considered yourself as someone who liked to and did take risks?

XV. Adaptability

A. How did you feel when you were faced with a major change in your life at this time; for example, moving to another town or high school, changing employers, trying different school activities? (Try to determine how flexible the interviewee was when faced with new situations.)

B. How creative would you have considered yourself to be?

XVI. Appearance

A. Would you have considered yourself as well groomed?

B. Would you have considered yourself as a sharp dresser?

Appendix CB

Interview Record Form

Robert F. Morrison
8 December 1994

Interview Record Form[1]

Interviewer: _____

Class of Interviewees

Service: USMC _____ or U.S. Navy _____

Race: Black _____ or White _____

MOS/Rating: Technical _____ or Nontechnical _____

Descriptive Information

Pay Grade: E-6 _____ E-7 _____
E-8 _____ E-9 _____

Years in Service: _____

_____

Level of Education: More than H.S. _____
High School Diploma (12) _____
G. E. D. _____
Less than H.S. Diploma _____

Academic Class Standing: No Idea _____
Better than Top Half _____
Top Half _____
Average _____
Other _____

School During Teen Years

Number of students in last 4 year high school: _____

_____

Distance to last school: No information _____
In neighborhood _____
Distant _____

Activities:

Sports: None _____
Yes (List) _____

_____

Leadership Experience: None _____
Yes (List) _____

_____

_____

[1]Use this form to record/summarize the information that you acquired from all of your interviews representing one of the 8 interviewee classes, such as Navy/ White/Technical or USMC/Black/ Nontechnical.

School (Continued)

Other Activities: None _____
Yes (List) _____

Leadership Experience: None _____
Yes (List) _____

Dealings with Teachers (Describe feelings of influencing them):

_____
_____
_____
_____
_____
_____
_____
_____

Admired Teacher(s): None _____
Yes (Describe) _____

_____
_____
_____
_____
_____

Behavior in Class (Describe): _____

_____
_____
_____
_____
_____
_____
_____

Type of H.S. Course Emphasis: College Prep/Academic: _____
Vocational/Technical _____
No Information or Other _____

Best Subjects: None _____ Math _____
English _____ Vocational _____
History _____ Other (Note) _____

Most Liked Subjects: None _____ Math _____
English _____ Vocational _____
History _____ Other (Note) _____

School (Continued)

Kind of Help Peers Sought From Him: None _____
Yes (Note Type of Help such as with best subject)

_____
_____
_____
_____

Outstanding Achievement: Graduating _____
Other (List) _____

_____
_____
_____
_____
_____

Peer Relations as a Teenager

Close Friends (Number) : _____

_____

Acquaintances (Number): _____

_____

Interactions with Friends:
Activities (List) _____

_____
_____
_____
_____
_____
_____

Leadership: None _____ Yes (Describe) _____

_____
_____
_____
_____

Community Activities as a Teen

Activities (List) _____

_____
_____
_____
_____
_____
_____
_____

Community Activities (Continued)

Leadership: None _____ Yes (Describe) _____

_____

_____

_____

_____

_____

Church as a Teen

Level of Activity: High _____ Average _____
Low _____ None _____
Strongly Religious: Yes _____ No _____
Activities: Choir _____ Youth Group _____
Usher et al _____ Other (List) _____

_____

_____

Leadership Role: Follower _____ Leader (Describe) _____

_____

_____

Work as a Teen

Number of Jobs During High School: _____

_____

Most Number of Jobs at one Time: _____

_____

Number of Years Worked Prior to End of High School: _____

_____

Maximum Hours Worked Per Week During School: _____

_____

Type of Work Done: Manual Labor _____

_____

Skilled Craft _____
Restaurant _____
Service Station _____
Other (List) _____

_____

Position Held: Worker _____
Supervisory _____
Owner _____
Other (List) _____

_____

Work (Continued)

Amount of Influence on Boss (Describe): _____

_____

_____

_____

_____

Reason for Working: Earn Own Money _____

Help Support Family _____

Something to do _____

Parent Required it _____

Other (List) _____

_____

Describe Work Between High School and Enlistment: None ___

_____

Family While a Teenager

Parents Divorced: No _____ Yes _____

Total Number in Family (Include Interviewee): _____

_____

Composition of "Family" Unit in Which Raised: _____

Father: Yes ——— No ——— Step _____

Mother: Yes ——— No ——— Step _____

Surrogate Parent (Note): _____

_____

Number of Older Brothers: _____

Number of Older Sisters: _____

Number of Younger Brothers: _____

Number of Younger Sisters: _____

Surrogate Brothers or Sisters (Note): _____

_____

Relating Within Family (Describe):

Father (or Surrogate) _____

_____

_____

_____

_____

Mother (or Surrogate) _____

_____

_____

_____

_____

Family (Continued)

Brother(s) (or Surrogate) _____

Sister(s) (or Surrogate) _____

Obtaining Help With School Work or Other Learning:

Father: None _____ Other (Describe) _____

Mother: None _____ Other (Describe) _____

Brother(s): None _____ Other (Describe) _____

Sister(s): None _____ Other (Describe) _____

Helping Others With School Work or Other Learning:

Brother(s): None _____ Other (Describe) _____

Sister(s): None _____ Other (Describe) _____

Rewards (Describe the source, amount, and type):

Source and Amount:

None _____

Father _____

Family (Continued)

Mother _____

Type: Privileges _____

Money _____
Gifts _____

Direct Verbal Praise _____
Indirect Verbal Praise _____
Other _____

Discipline

Source and Amount:

None _____
Father _____

Mother _____

Type: Lose Privileges _____

Verbal _____
Whipping _____

Beating _____

Other _____

Social Activities by Parents: None

Father _____

Family (Continued)

Mother _____

_____

_____

_____

Type: Privileges _____

_____

Money _____

Gifts _____

_____

Special Act (Meals, etc.) _____

_____

Direct Verbal Praise _____

Indirect Verbal Praise _____

Other _____

_____

_____

Discipline

Source and Amount:

None _____

Father _____

_____

_____

Mother _____

_____

_____

_____

_____

Type: Lose Privileges _____

_____

Verbal _____

Whipping _____

_____

Beating _____

_____

Other _____

_____

_____

_____

Social Activities by Parents: None _____

Father _____

_____

_____

_____

Family (Continued)

Mother _____

_____

_____

_____

Family Social Activities:

As a Family: None _____ Describe _____

_____

_____

With Other Families: None _____ Describe _____

_____

_____

_____

With Relatives: None in Area ____ Some in area _____

Many in Area _____

Activities: None _____ Major holidays/Reunions _____

Other _____

_____

_____

Family "Climate" or "Culture": Can't determine _____

Strict Disciplinarian (autocratic) _____

_____

Strict Disciplinarian (benevolent) _____

_____

Give and Take/all involved _____

_____

Abdication/laisse faire/left on own _____

_____

Mixture of above (Describe _____

_____

_____

_____

_____

Parental Occupation

Father (or surrogate) _____

_____

_____

_____

_____

Mother (or surrogate): Homemaker _____

Other _____

_____

_____

Family (Continued)

Parent as a Supervisor
Father: Yes _____ No _____
Mother: Yes _____ No _____
Primary Location as a Teenager: Rural _____
Small Town (to 10K): _____
Small City (to 100K): _____
Medium City (to 300K): _____
Large City: _____

Personal Characteristics

Leadership Self-Efficacy at the time he entered service:
Strongly felt he could do it _____
Felt he could but with trepidation _____
Quite apprehensive but would try _____
Doubtful, quite apprehensive, scared _____
Other _____
_____
_____

Self-control (How does he handle fear? . . . anger?):
Fear: Never scared _____
Made sure it didn't show _____
Calm until emergency over _____
Run or get away _____
Loses control _____
Other _____
_____

Anger: Never angry
Keeps it under total control _____
Controlled until incident over _____
Goes off by self _____
Lose control and yells _____
Loses control and hits _____
Other _____
_____

Reliability, Consistency, Perseverance: _____
So much so, he was sought out to do things _____
Very dependable/persevering _____
Dependable when interested in task _____
Somewhat dependable _____
Not very dependable _____
Other _____
_____

Personal Characteristics (Continued)

Assertiveness:

Often sought out things to do _____
Sometimes sought out things to do _____
Infrequently sought out things to do _____
Did not seek out things to do _____
Other _____

_____

Interpersonal Activity Preference:

Do things by myself _____
Sometimes by self and sometimes with others _____
Do things in a group/with others _____
Other _____

_____

Seen as a risk taker: Yes _____ No _____
Other _____

_____

Adaptability:

Prefers a lot of stability _____
Adjusts well but doesn't seek new situations _____
Often trying different activities _____
Other _____

_____

Appearance:

Well Groomed: Yes _____ No _____
Sharp Dresser Yes _____ No _____

Other Comments

Appendix D

Experimental Form 1

Biodata Items for Assessment of Potential for Leadership:

School, Family, Work, and Community Experiences and Personal Characteristics

Developed by
Rhonda Lovec
Robert F. Morrison
Barbara Woods

Topic: Junior High and High School

Attributes assessed: Academic achievement and interest, Team work, Leadership experience, Interpersonal competence, Energy level, Achievement motivation, Initiative/Drive, Self-confidence, Self-sufficiency, Planning, Deference to authority, Role models, Dominance, Extroversion, Developing, and Supporting

1. The highest level of education I have completed is:

   a. More than high school.
   b. High school diploma.
   c. G.E.D.
   d. Less than high school diploma.

2. About how many students were there in your class (senior, junior, sophomore, or freshman) your last year in high school?

   a. 125 or less.
   b. 126 to 250.
   c. 251 to 450.
   d. 451 to 750.
   e. 751 or more.

3. How far did you live from the high school that you attended for the longest period?

   a. Within walking distance (whether you walked or not).
   b. Outside of walking distance.

4. How many high schools did you attend?

   a. 1.
   b. 2.
   c. 3.
   d. 4 or more.

5. Beyond the courses that you were required to take, what was the emphasis in your junior and senior high school?

   a. Primarily college preparatory/academic.
   b. A mixture of college preparatory and vocational.
   c. Primarily vocational.

6. My average grades in my typical high school classes were:

   a. Mostly As.
   b. Mostly As and Bs.
   c. Mostly Bs.
   d. Mostly Bs and Cs.
   e. Mostly Cs.
   f. Mostly Cs and Ds.
   g. Mostly Ds or below.

7. My average grades in high school classes that I liked were:

   a. Mostly As.
   b. Mostly As and Bs.
   c. Mostly Bs.
   d. Mostly Bs and Cs.
   e. Mostly Cs.
   f. Mostly Cs and Ds.
   g. Mostly Ds or below.
   h. I did not like any particular classes.

8. My average grades in high school classes that I disliked were:

   a. Mostly As.
   b. Mostly As and Bs.
   c. Mostly Bs.
   d. Mostly Bs and Cs.
   e. Mostly Cs.
   f. Mostly Cs and Ds.
   g. Mostly Ds or below.
   h. I did not dislike any particular classes.

9. Considering the circumstances in which I was living and working during high school, I feel that my grades were:

   a. A lot higher than I had expected to do.
   b. Somewhat higher than I had expected to do.
   c. About what I had expected to do.
   d. Somewhat lower than I had expected to do.
   e. A lot lower than I had expected to do.

10. The high school subject(s) or activities that I did the best in were (check 1 or 2 but not more):

   a. Mathematics.
   b. Scientific subjects (e.g. chemistry, biology, physics).
   c. English (including literature, reading, etc.).

d. Foreign language.
e. History, civics, and social science.
f. Vocational or technical subjects.
g. Business or economics.
h. Music, art, or drama.
i. Speech or debate.
j. JROTC.
k. Home economics or family living.
l. Health or P.E.
m. None.
n. Other (describe). _____

11. The high school subject(s) or activities that I enjoyed the most were (check 1 or 2 but not more):

a. Mathematics.
b. Scientific subjects (e.g. chemistry, biology, physics).
c. English (including literature, reading, etc.).
d. Foreign language.
e. History, civics, and social science.
f. Vocational or technical subjects.
g. Business or economics.
h. Music, art, or drama.
i. Speech or debate.
j. JROTC.
k. Home economics or family living.
l. Health or P.E.
m. None.
n. Other (describe). _____

12. The high school subject(s) or activities that I enjoyed the least were (check 1 or 2 but not more):

a. Mathematics.
b. Scientific subjects (e.g. chemistry, biology, physics).
c. English (including literature, reading, etc.).
d. Foreign language.
e. History, civics, and social science.
f. Vocational or technical subjects.
g. Business or economics.
h. Music, art, or drama.
i. Speech or debate.
j. JROTC.
k. Home economics or family living.
l. Health or P.E.
m. None.
n. Other (describe). _____

13. I was involved in the following school related activities during junior high and high school (check all that apply):

a. Team sports (i.e. football, basketball, baseball, soccer, hockey, etc.).
b. Individual sports (i.e. track and field, cross country, wrestling, golf, tennis, etc.).
c. Team manager/statistician.
d. Band/choi.r
e. Student council.
f. Speech/drama.
g. Vocational/business clubs.
h. Community service oriented clubs.
i. Other type of club.
j. Junior ROTC.
k. Newspaper/yearbook staff.
l. Honor society.
m. Other activity (list). _____
n. None.

14. I held the following positions during junior high and high school (check all that apply):

a. Class officer.
b. Athletic team captain or co-captain.
c. Club officer/assistant.
d. Play or stage director.
e. Athletic coach.
f. Athletic team manager.
g. Student council.
h. Basketball point guard.
i. Football quarterback.
j. JROTC officer or non-commissioned officer.
k. Lead chair in band or orchestra; choir soloist.
l. Social activity or fund raiser chairman/coordinator.
m. Publication editor.
n. Bus driver coordinator
o. Bus driver.
p. Assistant in a vocational course.
q. Assistant in an academic course.
r. Other leader position (list). _____
s. I did not hold any type of leader position.

15. The approximate number of school activities/sports I was involved in throughout high school was:

a. More than 10.
b. 9 or 10.

c. 7 or 8.
d. 5 or 6.
e. 3 or 4.
f. 1 or 2.
g. None.

16. The approximate number of elected offices I held during high school was:

a. 7 or more.
b. 5 or 6.
c. 3 or 4.
d. 1 or 2.
e. None.

17. The approximate number of other types of leadership positions (e.g. committee head, team captain, platoon leader, directing other students on how to do an activity, etc.) that I held during high school was:

a. 7 or more.
b. 5 or 6.
c. 3 or 4.
d. 1 or 2.
e. None.

18. Concerning the things I participated in during high school, I generally

a. Made very precise and detailed plans.
b. Made broad, general plans.
c. Planned some activities well, but didn't plan others.
d. Made plans only if it was something I really wanted to do.
e. Mutually decided with friends on what to do and did it.
f. Did not plan ahead, just went along with what happened.
g. Let others do all the planning.
h. Other (describe).

19. As a teenager, if I had my choice I preferred to:

a. Work on projects by myself.
b. Typically work on projects by myself, but once in a while work with others.
c. Sometimes work on projects by myself, and sometimes work with others.
d. Typically work on projects with others, but once in a while work by myself.
e. Work on projects with others.

20. My most important or outstanding achievement(s) in high school was (check 1 or 2 but not more):

a. Too many achievements to choose one or two.
b. I can't think of any.
c. Graduating.
d. Getting as far as I did in school.
e. Receiving a college athletic scholarship.
f. Receiving a college academic scholarship.
g. Having a key role in an activity (e.g. team captain, leading role in a play, play director, first chair in my band section, newspaper/yearbook editor, etc.).
h. Lettering in one or more sports.
i. Receiving a special award or recognition in sports.
j. Other achievement related to athletics.
k. Being nominated to National Honor Society or equivalent
l. Receiving a special award or recognition in academics (e.g. honor roll, valedictorian, etc.).
m. Achievement in a particular course.
n. Completing credits required for graduation ahead of time.
o. Other achievement related to academics.
p. Balancing good grades and extra-curricular activities/a job
q. Receiving a special award or recognition related to art, drama, or music.
r. Receiving a special award or recognition related to speech or debate.
s. Receiving a special award or recognition for performance in a vocational course, program, or project.
t. Receiving a special award or recognition related to a school club.
u. An achievement concerning my social or personal life.
v. Holding on to my dreams and goals.
w. Other (describe). _____

Teacher Relations

21. When thinking about a teacher(s) I admired in junior high or high school, the characteristic about them that stands out the most is (check 1, 2, or 3 items but not more):

a. Their control/discipline of the class.
b. The subject they taught.
c. The knowledge they possessed.
d. Their ability to communicate effectively.

e. Their high standards.
f. They treated me as an individual; as a person; as an equal.
g. The interest they showed towards students (listened to and made time for individuals).
h. Their appearance.
i. Their support/encouragement.
j. They showed concern for students and personal problems.
k. They believed in what they were doing; committed; dedicated.
l. They involved everyone; established a cooperative environment.
m. They were entertaining/flamboyant/humorous.
n. The accomplishments they had achieved.
o. Their self confidence.
p. Their friendly, positive attitude.
q. Their willingness to help students.
r. Their ability to motivate students to do their best.
s. Their ability to be calm/ patient.
t. They were easy to relate or talk to.
u. They were flexible; easy going.
v. I did not admire any teacher.
w. Other (describe). _____

22. The type of relationship I had with my typical high school teachers was:

a. Very close.
b. Friendly/casual.
c. Treated me as an individual/ an equal.
d. Helpful.
e. Respectful.
f. Formal.
g. Distant.
h. Tense.
i. Other (describe). _____

23. The type of relationship I had with teachers I admired was:

a. Very close.
b. Friendly/casual.
c. Treated me as an individual/ an equal.
d. Helpful.
e. Respectful.
f. Formal.
g. Distant.
h. Tense.
i. None admired.

j. Other (describe). _____

24. The type of relationship I had with teachers I did not respect was:

a. Very close.
b. Friendly/casual.
c. Helpful.
d. Respectful.
e. Formal.
f. Distant.
g. Tense.
h. Treated me as inferior.
i. None that I didn't respect.
j. Other (describe). _____

25. My teachers usually regarded my school performance to be:

a. I was able to complete things easily by myself for most classes.
b. I was a hard worker, but needed some additional help.
c. I did good if I was interested in the class.
d. I did not work up to my full ability.
e. I was not interested in school.
f. I was sometimes a problem/goof off.
g. They were not interested in my performance.
h. I don know.
i. Other (describe). _____

26. Which subject(s) or activities was the junior high/high school teacher or staff member you admired the most in charge of? (check 1 or 2 but not more):

a. Mathematics.
b. Scientific subjects (e.g. chemistry, biology, physics).
c. English (including literature, reading, etc.).
d. Foreign language.
e. History, civics, and social science.
f. Vocational or technical subjects.
g. Business or economics.
h. Music, art, or drama.
i. Speech or debate.
j. JROTC.
k. Home economics or family living.
l. Athletics.
m. Counseling.
n. Cafeteria.

o. Library.
p. A school related club.
q. Home room or class advisor.
r. He/she was the principal or vice principal.
s. I did not admire any teacher or staff member in junior high or high school.
t. Other (describe). _____

Class Participation

27. My participation as a junior and senior in my typical high school class could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

28. My participation as a junior and senior in a high school class in which one of my favorite subjects was taught could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.

g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

29. My participation as a junior and senior in a high school class in which one of my most disliked subjects was taught could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

30. My participation as a junior and senior in a high school class taught by a teacher that I admired could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

31. My participation as a junior and senior in a high school class taught by a teacher that I did not admire could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

32. My participation as a junior and senior in a high school class in which one of my strongest subjects was taught could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

33. My participation as a junior and senior in a high school class in which one of my weakest subjects was taught could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.

b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.

Peer Relations

34. My participation as a junior and senior in a high school class in which one of my weakest subjects was taught could be best described as (check as many of the following as you need to describe your behavior):

a. My mind tended to wander or I got involved in other tasks/ topics/subjects so I participated only when I had to.
b. Although I paid attention, I sat quietly and did not participate unless called upon.
c. I occasionally asked questions if something was not clear.
d. I occasionally volunteered when the teacher was trying to obtain class participation.
e. I asked lots of questions.
f. I often volunteered when class participation was expected.
g. I initiated a lot of discussion and/or questions whenever I felt like I wanted to do so.
h. I often challenged the opinions of the teacher or text.
i. I often got involved with other class mates in discussions or activities that were considered disruptive by the teacher.
During high school/teenage years, my peers came to me for help or advice ___.
j. Constantly.
k. Quite often.
l. Occasionally.
m. Rarely.
n. Never.

35. The type of help my peers sought from me concerned:

a. Vocational/technical classes or projects.

b. Other schoolwork.
c. Sports.
d. Non-athletic extra-curricular activities (e.g. clubs, committees, drama, student council).
e. Putting on events such as proms, pep rallies, and fund raisers
f. The opposite sex/ dating.
g. Personal problems or issues.
h. A specific skill I had (e.g. mechanics, music, woodworking, etc.).
i. Protection or learning to protect themselves.
j. Resolving conflicts and arguments.
k. Social activities.
l. None.
m. Other (describe). _____

36. The approximate number of casual friends I had throughout my teenage years was:

a. More than 60.
b. Between 45 - 60.
c. Between 30 - 45.
d. Between 20 - 30.
e. Between 10 - 20.
f. Between 5 - 10.
g. 5 or fewer.

37. The number of close friends I had throughout my teenage years was:

a. More than 30.
b. 21 to 30.
c. 16 to 20.
d. 11 to 15.
e. 6 to 10.
f. 4 to 6.
g. 0 to 3.

Topic Family

Attributes assessed: Emotional maturity, Interpersonal competence, Parental & nonparental support, Discipline, Deference to authority, Consulting, Developing, and Supporting

1. Counting myself, the number in my family/household while I was a teenager was?

a. 1, I was on my own.
b. 2.
c. 3.
d. 4.
e. 5.
f. 6.
g. 7-8.
h. 9-10.
i. 11 or more.

2. Did you and your natural parents all live together while you were growing up?

a. Yes.
b. No, they were separated.
c. No, they were divorced.
d. No, one had died.
e. No, both died.
f. No, I did not live with my natural parents.

3. Most of the time while I was growing up, the household that I lived in included the following adults:

a. My mother and father.
b. My mother and a male guardian.
c. My mother.
d. My father and a female guardian.
e. My father.
f. A single relative.
g. Married relatives.
h. I lived with foster parents or non relatives.
i. I lived in a group home or institution.
j. I lived on my own.
k. Other (describe). _____

4. While growing up, I had (check all that apply):

a. No brother(s) or sister(s).
b. Older brother(s).
c. Older sister(s).
d. Younger brother(s).
e. Younger sister(s).
f. A twin.

5. The type of upbringing I received from my mother/female guardian was:

a. Very strict and rigid.
b. Strict but fair.
c. Give and take--all involved in decisions.
d. Inconsistent.
e. Not very strict.
f. Almost no discipline/allowed to do whatever I wanted.
g. There was no female adult in the household in which I was raised.
h. Other (describe). _____

6. The type of upbringing I received from my father/male guardian was:

a. Very strict and rigid.
b. Strict but fair.
c. Give and take--all involved in decisions.
d. Inconsistent.
e. Not very strict.
f. Almost no discipline/allowed to do whatever I wanted.
g. There was no male adult in the household in which I was raised.
h. Other (describe). _____

7. While growing up the type of relationship I had with my father/male guardian was:

a. Very close.
b. Somewhat close.
c. Close at times, but strained at other times.
d. Neither close, nor remote.
e. Somewhat remote.
f. Very remote.
g. I did not have a father (or male guardian) while I was growing up.

8. Characteristics that describe the type of relationship I had with my father/male guardian include (check the major characteristics that apply):

a. We shared interests and did many things together.
b. He was easy to relate/talk to.
c. He always took the time to talk or do things with me.
d. He was a soft touch/ could be persuaded easily.
e. Affectionate.
f. Helpful/encouraging.
g. Respectful.
h. Formal/traditional roles.
i. He wasn't around very often/was too busy to talk or do things with me.
j. He was difficult to talk to.
k. He was strict.
l. He was overbearing and overprotective.
m. I could never persuade him to change his mind.
n. Unsupportive.
o. I did not respect him.
p. Tense/conflicting.
q. I did not have a father (or male guardian) while I was growing up.
r. Other (describe). _____

9. While growing up the type of relationship I had with my mother/female guardian was:

a. Very close.
b. Somewhat close.
c. Close at times, but strained at other times.
d. Neither close, nor remote.
e. Somewhat remote.
f. Very remote.
g. I did not have a mother (or female guardian) while I was growing up.

10. Characteristics that describe the type of relationship I had with my mother/female guardian include (check the major characteristics that apply):

a. We shared interests and did many things together.
b. She was easy to relate/talk to.
c. She always took the time to talk or do things with me.
d. She was a soft touch/could be persuaded easily.
e. Affectionate.
f. Helpful/encouraging.

g. Respectful.
h. Formal/traditional roles.
i. She wasn't around very often/ was too busy to talk or do things with me.
j. She was difficult to talk to.
k. Strict.
l. She was overbearing and overprotective.
m. I could never persuade her to change her mind.
n. Unsupportive.
o. I did not respect her.
p. Tense/conflicting.
q. I did not have a mother (or female guardian) while I was growing up.
r. Other (describe). _____

11. While growing up the type of relationship I had with my brother(s) who lived at home was:

a. Very close.
b. Somewhat close.
c. Very close to one or more, but not very close to others.
d. Somewhat close to one or more, but not close to others.
e. Neither close, nor remote.
f. Somewhat remote.
g. Very remote.
h. None of them lived at home.
i. I don't have any brothers.

12. Characteristics that describe the relationship I had with my brother(s) include (check the major characteristics that apply):

a. Like best friends.
b. Easy to relate/talk to.
c. Like a substitute parent.
d. Helpful/encouraging.
e. Protective.
f. Served as an example.
g. Ordered around.
h. Difficult to talk to.
i. Competitive.
j. Tense/always fighting.
k. Dislike.
l. I don't have any brothers.
m. Other (describe). _____

13. While growing up, the type of relationship I had with my sister(s) who lived at home was:

a. Very close.
b. Somewhat close.
c. Very close to one or more, but not very close to others.
d. Somewhat close to one or more, but not close to others.
e. Neither close, nor remote.
f. Somewhat remote.
g. Very remote.
h. None of them lived at home.
i. I don't have any sisters.

14. Characteristics that describe the relationship I had with my sister(s) include (check the major characteristics that apply):

a. Like best friends.
b. Easy to relate/talk to.
c. Like a substitute parent.
d. Helpful/encouraging.
e. Protective.
f. Served as an example.
g. Ordered around.
h. Difficult to talk to.
i. Competitive.
j. Tense/always fighting.
k. Dislike.
l. I don't have any sisters.
m. Other (describe). _____

15. How much influence did you have over your brother(s) and/or sister(s)?

a. I did not have any brothers or sisters.
b. It was easy to influence all of my brother(s) and/or sister(s).
c. I could influence my older brother(s) and/or sister(s) but not my younger ones.
d. I could influence my younger brother(s) and/or sister(s) but not my older ones.
e. I could influence some of my brother(s) and/ or sister(s) but not others, regardless of whether they were older or younger.
f. I had better luck influencing my brother(s) than my sister(s).
g. I had better luck influencing my sister(s) than my brother(s).
h. I could not influence any of my brother(s) and/or sister(s).

16. As a teenager, the type of things my father (or male guardian) taught me or helped me with include: (check all that apply.)

a. I did not have enough contact with my father to learn much of anything from him.
b. Values/ knowing right from wrong.
c. Social skills.
d. How to fight.
e. Fishing, hunting, or other sports.
f. How to drive.
g. My homework.
h. How to do things around the house (e.g. fixing things, cooking, sewing, etc.).
i. Mechanics.
j. How to manage money.
k. Club projects (e.g. boy scouts, 4-H, etc.).
l. My father did not take the time to teach me much of anything.
m. Other (describe). _____

17. As a teenager, the type of things my mother (or female guardian) taught me or helped me with include: (check all that apply)

a. I did not have enough contact with my mother to learn much of anything from her.
b. Values/ knowing right from wrong.
c. Social skills.
d. How to fight
e. Fishing, hunting, or other sports.
f. How to drive.
g. My homework.
h. How to do things around the house (e.g. fixing things, cooking, sewing, etc.).
i. Mechanics.
j. How to manage money.
k. Cub projects (e.g. boy scouts, 4-H, etc.).
l. My mother did not take the time to teach me much of anything.
m. Other (describe). _____

18. The type of recognition my parents/guardians gave me for doing something well was (check all that apply):

a. Direct verbal praise.
b. Praising me to others.
c. Physical affection.
d. Special privileges.

e. Money.
f. Presents/special acts.
g. None.
h. Other (describe). _____

19. The type of punishment I received from my parents/guardians was (check all that apply):

a. Explanation that what I did was wrong.
b. Yelling.
c. Whipping.
d. Beating.
e. Lose privileges.
f. Warned not to do it again, but seldom punished.
g. None
h. Other (describe). _____

20. The frequency with which I was acknowledged for getting good grades in school was:

a. Always.
b. Usually.
c. Sometimes.
d. Very seldom.
e. Never.

21. The frequency with which I was punished for not doing well in school was:

a. Always.
b. Usually.
c. Sometimes.
d. Very seldom.
e. Never.

22. Which one of your parents did the disciplining?

a. Father (male guardian).
b. Mother (female guardian).
c. Both.
d. Neither one.

23. The frequency with which my parents/guardian showed interest in my school classes and homework was:

a. Always.
b. Usually.

c. Sometimes.
d. Very seldom.
e. Never.

24. The frequency with which my parents/guardian showed interest in my extracurricular activities (i.e. music, athletics, clubs, etc.) was:

a. Always.
b. Usually.
c. Sometimes.
d. Very seldom.
e. Never.
f. I was not involved in any activities.

25. To approximately how many clubs, social, and professional organizations did your father (male guardian) belong?

a. 0.
b. 1-2.
c. 3-4.
d. 5 or more.
e. I don't know.

26. To approximately how many clubs, social, and professional organizations did your mother (female guardian) belong?

a. 0.
b. 1-2.
c. 3-4.
d. 5 or more.
e. I don't know.

27. Looking back on the days you spent in your childhood home, what type of social activities were your parent(s)/guardian(s) involved in? (check major ones that apply)

a. Picnics and family get-togethers.
b. Programs of social clubs to which they belonged.
c. Church activities.
d. Professional activities.
e. Outdoor sports/activities (e.g. hunting, fishing, boating, etc.).
f. League sports (e.g. bowling, softball, etc.).
g. Community or school organizations.....
h. Community games (e.g. bingo, cards, etc.).
i. Parties.

j. None.
k. I did not live with my parents.
l. Other (describe). _____

28. While you were growing up, how often did your parent(s)/ guardian(s) entertain friends or relatives?

a. Quite often.
b. Fairly often.
c. Occasionally.
d. Very seldom.
e. Never.

29. Was your mother (female guardian) employed and away from home, at least part of the time while you were growing up?

a. No.
b. Yes, she started before I was 5 years old.
c. Yes, she started during the time I was between 6 and 11 years old.
d. Yes, she started during the time I was between 12 and 17 years old.
e. Yes, she started after I was 18 years old.
f. I did not live with my mother.

30. Was your father (male guardian) ever a supervisor or responsible for other workers at his job?

a. I don't know.
b. No.
c. Yes.
d. My father was not employed.
e. I did not live with my father.

31. Has your father (male guardian) ever held a leadership position in a church, community, or professional organization?

a. I don't know.
b. No.
c. Yes.
d. I did not live with my father.

32. Was your mother (female guardian) ever a supervisor or responsible for other workers at her job?

a. I don't know.
b. No.

c. Yes.
d. My mother was not employed.
e. I did not live with my mother.

33. Has your mother (female guardian) ever held a leadership position in a church, community, or professional organization?

a. I don't know.
b. No.
c. Yes.
d. I did not live with my mother.

34. Religion in your home was considered as:

a. An integral part of your home life.
b. One of several factors that were important.
c. A relatively unimportant factor.
d. Something to be left out of our family life.
e. Other (describe). _____

Developing and Supporting

35. When I had a problem at school or work that I was having difficulty solving I would:

a. Ask a teacher or supervisor for help and advice.
b. Ask another student or fellow employee for help and advice.
c. Ask my parents for help and advice.
d. Ask my brothers or sisters for help and advice.
e. Ask friends for help and advice.
f. Work it out on my own.
g. I never had a problem I couldn't solve.
h. Other (describe). _____

36. Of the following, which best describes the time and effort you put in to help your younger brother(s) and/or sister(s) with their homework:

a. I did not have younger brother(s) and/or sister(s).
b. My younger brother(s) and/or sister(s) did not have any homework.
c. My younger brother(s) and/or sister(s) did not need any help with their homework.
d. My younger brother(s) and/or sister(s) did not want any help from me with their homework.

e. I spent a little time helping my brother(s) and/or sister(s) with their homework.
f. I spent some time helping my brother(s) and/or sister(s) with their homework.
g. I spent a great deal of time helping my brother(s) and/or sister(s) with their homework.

37. How often did you help your younger brother(s) and/or sister(s) with their homework?

a. I did not have a younger brother or sister.
b. Not at all.
c. Very seldom.
d. Occasionally.
e. Usually.
f. Very often.

Topic: Work Experience

Attributes assessed: Reliability, Maturity, Self-efficacy, Sociability, Interpersonal competence, Energy level, Motivation, Deference to authority, Goal specification, and Conformity

1. Age at which I worked at my first paying job before entering the military was:

a. Before age 12.
b. Age 12 - 13.
c. Age 14 - 15.
d. Age 16 - 17.
e. Age 18 or older.
f. I was never employed prior to entering the military.

2. Age at which I began working at a job of adult responsibility that was unpaid, (i.e. work on a farm, helping in a family restaurant, etc.) not including chores around the house was:

a. Before age 12.
b. Age 12 - 13.
c. Age 14 - 15.
d. Age 16 - 17.
e. Age 18 or older.
f. I did not work at this type of job.

3. Throughout high school, the number of years I worked at the types of jobs mentioned in questions 1 & 2 was:

a. Less than 1 year.
b. 1 year.
c. 2 years.
d. 3 years.
e. 4 or more years.
f. I quit school to work full time.
g. I did not work during high school.

4. The amount of time I worked after graduating or leaving school, prior to entering the military was:

a. None, I entered the navy right away.
b. 3 months or less.
c. 4 - 6 months.

d. 7 - 12 months.
e. 13 - 24 months.
f. 25 - 36 months.
g. More than 36 months.

5. During the school year, the maximum number of hours I worked per week was:

a. 0.
b. 1- 10.
c. 10 to 20.
d. 20 to 40.
e. More than 40.

6. During the summer, the maximum number of hours I worked per week was:

a. 0.
b. 1- 10.
c. 10 to 20.
d. 20 to 40.
e. More than 40.

7. Prior to entering the military, the main duties I performed at a job I liked the best were (check all the major ones that apply):

a. Customer service.
b. Manual labor.
c. Using technical or mechanical skills.
d. Farm/ranch related.
e. Working with children or the elderly.
f. Clerical or bookkeeping.
g. Restaurant related.
h. Working on my own away from others.
i. Training or supervising others.
j. Assistant manager/manager/owner.
k. I did not have a job I liked best.
l. I did not work prior to entering the military.
m. Other (describe). _____

8. Prior to entering the military, the main duties I performed at a job I disliked were (check all the major ones that apply):

a. Customer service.
b. Manual labor.
c. Using technical or mechanical skills.
d. Farm/ranch related.

e. Working with children or the elderly.
f. Clerical or bookkeeping.
g. Restaurant related.
h. Working on my own away from others.
i. Training or supervising others.
j. Assistant manager/manager/owner.
k. I did not have a job I disliked.
l. I did not work prior to entering the military.
m. Other (describe). _____

9. During my employment as a civilian, the statement that describes the amount of independence I had at a job I liked the best is:

a. I was expected to do exactly what the boss told me.
b. I worked as a member of a team.
c. I worked on my own with little supervision.
d. I supervised other employees.
e. I was my own boss.
f. I did not have a job I liked best.
g. I did not work prior to entering the military.
h. Other (describe). _____

10. During my employment as a civilian, the statement that describes the amount of independence I had at a job I disliked is:

a. I was expected to do exactly what the boss told me.
b. I worked as a member of a team.
c. I worked on my own with little supervision.
d. I supervised other employees.
e. I was my own boss.
f. I did not have a job I disliked.
g. I did not work prior to entering the military.
h. Other (describe). _____

11. As a teenager, my main reason for working outside my home during the school year was (check the major reasons that apply):

a. I did not work outside my home while attending school.
b. For something to do.
c. For part of a vocational/technical program at school.
d. Because my parent(s) required or expected it.
e. To gain experience.
f. To help with the family business/farm.
g. To help support myself or my family.
h. To have money for buying clothes.
i. To have money for buying a car.

j. To have extra spending money.
k. Other (describe). _____

12. As a teenager, my main reason for working outside my home during the summer was (check the major reasons that apply):

a. I did not work outside my home while attending school.
b. For something to do.
c. For part of a vocational/technical program at school.
d. Because my parent(s) required or expected it.
e. To gain experience.
f. To help with the family business/farm.
g. To help support myself or my family.
h. To have money for buying clothes.
i. to have money for buying a car.
j. To have extra spending money.
k. Other (describe). _____

13. From my work experience prior to the Navy, the term that best describes my typical relationship with coworkers that I liked is (check major ones that apply):

a. Very close.
b. Friendly/ casual.
c. Helpful/supportive.
d. Respectful.
e. Formal.
f. Distant.
g. Tense.
h. I did not like any particular coworkers.
i. I did not work before entering the military.
j. Other (describe). _____

14. From my work experience prior to the Navy, the term that best describes my typical relationship with co-workers that I disliked is (check major ones that apply):

a. Very close.
b. Friendly/ casual.
c. Helpful/supportive.
d. Respectful.
e. Formal.
f. Distant.
g. Tense.
h. I did not like any particular co-workers.
i. I did not work before entering the military.
j. Other (describe). _____

15. From my work experience prior to the Navy, the term that best describes my typical relationship with bosses that I admired is (check major ones that apply):

a. Very close/treated as an equal.
b. Friendly/casual.
c. Helpful/supportive.
d. Respectful.
e. Formal.
f. Distant.
g. Tense.
h. I was treated as inferior.
i. I did not admire any particular boss.
j. I did not work before entering the military.
k. Other (describe). _____

16. From my work experience prior to the Navy, the term that best describes my typical relationship with bosses that I disliked is (check major ones that apply):

a. Very close.
b. Friendly/casual.
c. Helpful.
d. Respectful.
e. Formal.
f. Distant.
g. Tense.
h. I was treated as inferior.
i. I did not have a boss that I disliked.
j. I did not work before entering the military.
k. Other (describe). _____

17. From my work experience prior to the Navy, the way my bosses usually regarded my performance at work was (check the major statements that apply):

a. I don't know.
b. I did more than was expected.
c. I was able to get things done easily.
d. I was dedicated and tried hard.
e. I only did what was necessary.
f. I did not work up to their standards.
g. I goofed off frequently.
h. They were not interested in my performance.
i. I did not work prior to entering the military.
j. Other (describe). _____

18. After high school, my choice of an ideal job would have been one which:

a. Allowed a great deal of interaction with other people.
b. Required working with a small group.
c. Allowed me to work closely with one other person.
d. Allowed me to work by myself sometimes and with other people sometimes.
e. Allowed me to mainly work by myself.
f. Other (describe). _____

Motivation for Joining the Navy

Landau and Farkas work (1978) indicated that motivations for joining the Navy were different between attrites and nonattrites. Nonattrites were more concerned with obtaining specific individual goals including: learning usable skills, getting an education, having the opportunity for training and travel, and developing a sense of maturity and responsibility. Attrites did not specifically know what they hoped to gain, and their reasons for joining were due more to external influences (e.g., lack of a civilian job, nothing better to do) than to internal goals.

19. The reason I joined the military was (check the major reasons that apply):

a. I always wanted to be in the military.
b. To serve my country.
c. Friends/relatives persuaded me to.
d. A recruiter encouraged me to.
e. To give myself time to decide what to do with my life.
f. It was a good job prospect.
g. To get an education or learn a skill.
h. To travel.
i. To mature and gain responsibility.
j. To turn my life in a new/better direction.
k. For something to do.
l. No good civilian jobs available.
m. Other (describe). _____

20. When I decided to join the military, the primary goal I hoped to achieve was:

a. Personal satisfaction.

b. Excitement and opportunity.
c. Preparing for a future career.
d. Economic security.
e. Providing for my family.
f. To be with my friends.
g. To do something with my life.
h. I did not have a goal, I just joined.
i. Other (describe). _____

Desirability of Working Conditions

Attributes assessed: Initiative, Motivation, Ability to adapt to a structured lifestyle, Desire to lead and achieve, Interpersonal competence, Persistence, Supporting, Recognition and Reward, and Consulting

Landau and Farkas work also indicated that in general, attrites responded more negatively towards the desirability of most work situations.

For each of the following factors, indicate how desirable you think it would be to have them associated with the ideal type of work you would like to do. Use a scale of 1 to 5 to rate your opinion.

[1 = very desirable; 2 = desirable; 3 = neither desirable nor undesirable; 4 = undesirable; 5 = very undesirable]

1. Doing difficult and demanding work.
2. Able to talk and work well with others.
3. Being required to meet high standards of quality.
4. Following strict rules about the way I look and dress.
5. Being told exactly what to do on my job.
6. Striving to accomplish complex goals.
7. Being part of an organization with strong discipline.
8. Helping others on the job.
9. Making my own decisions about the way things are done.
10. Having others follow my example.
11. Being able to consult/question superiors about what they want me to do.
12. Following strict rules of behavior.
13. Feeling pressure to finish jobs.
14. Directing others on how the job should be done.
15. Listening to others concerns.
16. Gaining the responsibility to work without supervision.
17. Freedom to plan my own work goals.

18. Discipline for poor work.
19. Working at a task until it is completed successfully.
20. Giving others credit for completing work duties well.
21. Being watched closely by supervisors.
22. Coworkers who help each other out.
23. Gaining responsibility for other workers.
24. Working as a member of a team.
25. Getting credit for doing a job well.
26. Knowing exactly what I am expected to do for a job.
27. Opportunity for advancement.
28. Relying mainly on my own decisions.
29. Always working on the same type of task.
30. Taking courses to learn how to do my job.

Topic: Personal Characteristics

Attributes assessed: Self-control, Energy level, Initiative, Self-confidence, Self-efficacy, Desire to lead and achieve, Persistence, Conscientiousness, Maturity, Risk taking, Dependability, Ego-Centrism, and Orderliness;

1. The factor from my teenage years that has had the most influence on the direction my life has taken was (check the major factors that apply):

a. My family.
b. My friends.
c. A teacher or boss.
d. Another adult who was not a relative.
e. My work experience.
f. My education.
g. My involvement in school and community activities.
h. My church involvement.
i. No strong influence.
j. Other (describe). _____

Self-Control

2. During my later teens, the following happened to me when I got really scared (check the major responses that apply):

a. I can not remember ever being really scared.
b. I started sweating.
c. I froze.
d. I remained calm as far as anyone could tell.
e. I would tense up inside.
f. I found it difficult to think clearly.
g. I seemed to take all the right actions.
h. I lost control.
i. I was calm until the emergency was over.
j. I talked my way out of the situation.
k. I controlled myself nearly every time.
l. I immediately got out of there.
m. I fought.
n. I avoided situations where I might get scared.

o. I took a deep breath.
p. I got help from someone else.
q. I got involved in something else (talking to someone, running, etc.) to relieve my fear.
r. Other (describe). _____

3. During my later teens, the following happened to me when I got angry (check the major responses that apply):

a. I can not remember ever being really angry.
b. I hit or threw inanimate objects.
c. I yelled.
d. I remained calm as far as anyone could tell.
e. I would tense up inside.
f. I found it difficult to think clearly.
g. I seemed to take all the right actions.
h. I lost control.
i. I was calm until the emergency was over.
j. I talked my way out of the situation.
k. I controlled myself nearly every time.
l. I immediately got out of there.
m. I fought with someone.
n. I lost my temper.
o. I avoided situations where I might get angry.
p. I got help from someone else.
q. I tried to control my anger by getting away from the situation.
r. I tried to get my anger out by doing something else (e.g. talking to someone, exercise, music etc.).
s. I tried to slow down and relax.
t. Other (describe). _____

4. During my later teens, the following happened to me when I was under stress (check the major responses that apply):

a. I can not remember ever being really stressed.
b. I started sweating.
c. I froze.
d. I remained calm as far as anyone could tell.
e. I would tense up inside.
f. I found it difficult to think clearly.
g. I seemed to take all the right actions.
h. I lost control.
i. I was calm until the emergency was over.
j. I controlled myself nearly every time.
k. I tried to get away from the situation.
l. I took it out on someone else.

m. I avoided situations where I might get stressed.
n. I took a deep breath.
o. I got help from someone else.
p. I got involved in something else (talking to someone, running, etc.) to relieve my stress.
q. Other (describe). _____

Assertiveness and Energy Level

5. During my teen years, I ___ (choose an item to fill in the blank):

a. Was always seeking something for my friends and me to do.
b. Usually sought out something for my friends and me to do, but once in a while waited for someone else to get me involved in doing something.
c. Sometimes sought out something for my friends and me to do, and sometimes waited for someone else to get me involved in doing something.
d. Usually waited for someone else to get me involved in doing something, but once in a while sought out something for my friends and me to do.
e. Was always waiting for someone else to get me involved in doing something.

6. How much energy would you say you had in comparison with your high school friends?

a. A lot more.
b. Somewhat more.
c. About the same amount.
d. Somewhat less.
e. A lot less.

7. During your last year in high school, how often did you feel very tired at the end of the day?

a. Very often.
b. Fairly often.
c. Once in a while.
d. Hardly ever.
e. Never.

8. During your teens, how fast did you work in comparison with your co-workers?

a. I did not work as a teen.
b. Much faster than most.
c. Faster than most.
d. About the same as most.
e. Slower than most.
f. Much slower than most.

Self-Efficacy

9. At the time of your enlistment, if you had been offered the opportunity to be in charge of a group of your fellow recruits, how would you have responded?

a. I would have definitely felt that I could do it.
b. I would have strongly felt that I could handle i.t
c. I probably could have done it, but would have been somewhat unsure.
d. I would have wanted to know what they wanted me to do and if I wasn't familiar with it, I would not have wanted to do it.
e. I would have been quite apprehensive and nervous, but would have tried anyway.
f. I would have wondered why I was chosen.
g. I would have been scared and doubtful that I could do it.
h. Other (describe). _____

10. At the time of your enlistment, what would you have estimated to be the level of success you could achieve if you had been placed in charge of a group of 7 of your fellow recruits?

a. Very successful.
b. Somewhat successful.
c. Neither successful nor unsuccessful.
d. Somewhat unsuccessful.
e. Very unsuccessful.

11. How sure would you have felt about this estimate of the level of success you could achieve?

a. Very sure.
b. Somewhat sure.
c. Neither sure, nor unsure.
d. Somewhat unsure.

e. Very unsure.

12. I think my ability to supervise a group of fellow recruits would be ranked in the ____ as compared with the supervisory ability of other new recruits (choose an item to fill in the blank):

a. Top 5%.
b. Top 10%, but not top 5%.
c. Upper 25%, but not top 10%.
d. Upper half, but not top 25%.
e. Lower half.
f. I don't know.

13. After leaving high school, the type of work that would have interested me the most is that which:

a. Involved complete responsibility for others.
b. Involved considerable responsibility for others.
c. Involved some responsibility for others.
d. Involved very little responsibility for others.
e. Involved no responsibility for others.

Risk-Taking

McClellands work indicated that managers were medium level risk-takers, setting goals that are challenging but not very high risk.

14. As a teenager, the chances I took that could have physically injured me were:

a. None.
b. Some.
c. Several.
d. A lot.

15. As a teenager, the chances I took that could have gotten me in trouble with the law were:

a. None.
b. Very few.
c. Some.
d. Several.
e. A lot.

16. As a teenager, the chances I took that could have lost me money were:

a. None.
b. Very few.
c. Some.
d. Several.
e. A lot.

17. As a teenager, the chances I took that could have gotten me in trouble with my parent(s) were:

a. None.
b. Very few.
c. Some.
d. Several.
e. A lot.

18. As a teenager, the chances I took that could have embarrassed me in front of my friends and acquaintances were:

a. None.
b. Very few.
c. Some.
d. Several.
e. A lot.

19. As a teenager, the chances I took that could have gotten me in trouble with my friends and acquaintances were:

a. None.
b. Very few.
c. Some.
d. Several.
e. A lot.

20. As a teenager, the chances I took that could have gotten me in trouble with other kids besides my friends and acquaintances were:

a. None.
b. Very few.
c. Some.
d. Several.
e. A lot.

Responsibility and Dependability

21. While growing up I did chores around the house ___

a. Every day.
b. 4 to 6 times a week.
c. 1 to 3 times a week.
d. 1 to 3 times a month.
e. Never.
f. Other (describe). _____

22. As a teenager, the amount of independence my parents/guardian allowed me was:

a. As much as I wanted.
b. A lot unless I was being punished.
c. An average amount, but with clear boundaries.
d. A little, they were quite restrictive.
e. Practically none.
f. Other (describe). _____

23. As a teenager, I was given many key responsibilities around my home (e.g. watching brothers/sisters, shopping, doing repairs, etc.).

a. The extent to which I agree with the above statement is:
b. Strongly agree.
c. Somewhat agree.
d. Neither agree nor disagree.
e. Somewhat disagree.
f. Strongly disagree.

24. As a teenager, my parents allowed me to carry out my responsibilities without checking up on me all the time.

The extent to which I agree with the above statement is:

a. Strongly agree.
b. Somewhat agree.
c. Neither agree nor disagree.
d. Somewhat disagree.
e. Strongly disagree.

25. The extent to which adults saw me as able to be depended on to do what I was told was:

a. I was so dependable that they sought me out to take on or be in charge of any kind of task.
b. I was considered to be very dependable.
c. I was considered to be dependable.
d. I was considered to be very dependable if I was interested in the task.
e. I was considered to be sometimes dependable and sometimes not dependable.
f. I was considered to be not very dependable.

26. When working on something I ____ continue to work on it until it expresses what I really mean or until I get it completely right. (Choose an item to fill in the blank.)

a. Always.
b. Usually.
c. Occasionally.
d. Rarely.
e. Never.

27. In high school, how often did you give up on a difficult problem in class?

a. Very often.
b. Fairly often.
c. Once in a while.
d. Hardly ever.
e. Never.

28. In high school, how often did you put off doing things that you didn't want to do?

a. Very often.
b. Fairly often.
c. Once in a while.
d. Hardly ever.
e. Never.

29. Compared to your high school classmates, how dependable were you in doing things?

a. Much more dependable.
b. Somewhat more dependable.
c. About the same.

d. Less dependable.
e. Much less dependable.

30. How often did you leave work unfinished in a class you thought was boring?

a. Very often.
b. Fairly often.
c. Once in a while.
d. Hardly ever.
e. Never.

31. How often did you leave work unfinished in a class you didn't like?

a. Very often.
b. Fairly often.
c. Once in a while.
d. Hardly ever.
e. Never.

32. How often did you leave work unfinished in a class you liked?

a. Very often.
b. Fairly often.
c. Once in a while.
d. Hardly ever.
e. Never.

33. While you were in high school, what reputation did you have among adults for doing what you said you would do, compared to your acquaintances?

a. Much better.
b. Somewhat bette.r
c. About the same.
d. Worse.
e. Much worse.

34. How many times did you skip school or work to do something that you would rather do?

a. Very many times.
b. Several times.
c. A few times.
d. Once or twice.
e. Never.

Appearance

35. As a teenager, my normal appearance could best be described as:

a. Extremely well groomed.
b. Neat and clean.
c. Not especially neat nor untidy.
d. Untidy/unkempt.
e. Other (describe). _____

36. As a teenager, my normal dress could best be described as:

a. What I chose to wear.
b. What I was advised to wear.
c. What I was given to wear.
d. Other (describe). _____

37. As a teenager, my normal dress could best be described as:

a. Conservative.
b. Casual and comfortable (such as jeans and T-shirts).
c. What was in style at the time.
d. Hand-me downs from my older brothers.
e. Whatever could be purchased with the money available.
f. A leading fashion statement among my friends and acquaintances.
g. Other (describe). _____

Adaptability

For the following items, select the answer (1-7) that best describes the extent to which that statement applies to you.

(1) Completely true.
(2) Mostly true.
(3) Slightly true.
(4) Neither true nor false.
(5) Slightly false.
(6) Mostly false.
(7) Completely false.

1. When I switched schools between junior high and high school, I enjoyed the challenge of meeting and getting to know new people.

2. While in school, I liked classes in which the teacher had us do a variety of different projects and homework assignments.

3. After high school, I looked forward to the new and different experiences I would have.

4. It was hard for me to adapt to other students when I first entered high school.

5. I have found that I can adjust my behavior to apply to any type of situation I find myself in.

6. While in school, it bothered me when teachers would change test dates or assignment due dates.

7. I would like to have a job in which I could do the same thing every day.

8. It was easy for me to adapt to the transition between junior high and high school.

9. I have trouble changing my behavior to suit different people and different situations.

10. I was always trying new and different activities throughout junior high and high school.

11. I would like to have a job where the duties I performed changed fairly often.

12. I find it hard to adjust to changes in my personal life (e.g. moving, friends moving away, break-ups with girlfriends, etc.).

13. Once I know what a situation calls for, it is easy for me to adjust my actions accordingly.

14. I prefer being around people who are predictable.

15. No matter what, the "tried and true" method is always the best way for me to do something.

Additional Topics

Dominance and Leadership

16. In group discussions in high school, to what extent did you tend to try to make others see your point of view?

a. Not at all.
b. To a slight extent.
c. To a moderate extent.
d. To a large extent.
e. To a very great extent.

17. In comparison with others in your high school classes, how much did you question your teachers on the subject matter?

a. Much less.
b. Slightly less.
c. About the same.
d. Slightly more.
e. Much more.

18. In high school, when you were a member of a small group, how much did you participate compared to others in the group?

a. Much less.
b. Slightly less.
c. About the same.
d. Slightly more.
e. Much more.

19. When deciding what to do after school and/or on weekends, how much influence did you have on your friends' decision?

a. Much more than anyone else.
b. Somewhat more than anyone else.
c. About the same as everyone else.
d. Somewhat less than anyone else.
e. Much less than anyone else.
f. I did not do things with friends after school or on weekends.

20. As a teenager, how often were you able to persuade your parent(s) [or guardian(s)] to go along with what you wanted to do?

a. Never.
b. Very seldom.
c. Occasionally.
d. Fairly often.
e. Very often.

21. While you were in school, how often did you feel that you had any impact on the ideas that were expressed in class?

a. Never.
b. Very seldom.
c. Occasionally.
d. Fairly often.
e. Very often.

22. As a teenager, how often were you a leader in the activities you and your friends participated in?

a. Never.
b. Very seldom.
c. Occasionally.
d. Fairly often.
e. Very often.

23. During your youth when teams were being chosen for games, when were you usually picked?

a. Near the first.
b. Around the middle.
c. Near the end.
d. Was usually one of those who did the choosing.
e. Very seldom had time to play games.

Social Development

24. Compared to other families that you knew, how active were your parent(s) [or guardian(s)] in social activities?

a. Much more active.
b. Slightly more active.
c. About the same.
d. Slightly less active.

e. Much less active.

25. Compared to other families that you knew, how active was your family in social activities together, with relatives, or with other families?

a. Much more active.
b. Slightly more active.
c. About the same.
d. Slightly less active.
e. Much less active.

TOPIC: COMMUNITY ACTIVITIES

26. How active were you in community activities, groups, and service organizations while you were growing up?

a. Extremely active.
b. Fairly active.
c. Active every once in a while.
d. Not very active.
e. Not involved in any community activities.

27. Compared to other families, how active was your family in church activities?

a. Much more active.
b. Slightly more active.
c. About the same.
d. Slightly less active.
e. Much less active.

28. Compared to others of your age that you knew, how active were you in church activities?

a. Much more active.
b. Slightly more active.
c. About the same.
d. Slightly less active.
e. Much less active.
f. Did not attend church at all.

29. In which of the following church activities did you participate? (Note all of those that are applicable to you.)

a. Did not attend church at all.
b. Attended church but did not participate in activities.
c. Youth group.
d. Choir or other music.
e. Sports team.
f. Usher, greeter, alter boy, or the like.
g. Teacher or Pastors assistant.
h. Social events.
i. Sunday school, bible school, church camp, or the like.
j. Other (please list) _____

30. Did you ever hold a leadership position in a church activity?

a. Did not participate in any church activities.
b. Yes.
c. No.

31. As a teenager, how religious would you have considered yourself in comparison with others your age?

a. Much more.
b. Somewhat more.
c. About the same.
d. Somewhat less.
e. Much less.

32. Approximately how many leadership-type positions (e.g., den chief, club officer, teaching or coaching others, etc.) did you hold in community groups during your teenage years?

a. 7 or more.
b. 5 or 6.
c. 3 or 4.
d. 1 or 2.
e. None.

33. While growing up, in which of the following were you involved (check the major ones that apply):

a. Cub/boy scouts.
b. 4-H.
c. Martial arts.
d. Community sport teams (i.e., little league, boxing, soccer, swimming, etc.).
e. Youth corps.
f. Community center activities.
g. Big brothers organization.
h. Youth camps.
i. Community band.
j. Community service organization.
k. Knights of Columbus.
l. Volunteer fire or rescue squads.
m. Youth groups.
n. I was not involved in any community activities.
o. Other (describe). _____

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